Fig. 1—Mountains of Used Crucibles Testify to Long Years of Production

Iron Smelting Works Located Near Ping Ting Chow, Shansi

Chinese Make Iron Today

As in the Dim Past—By Frank A. Foster

SUPERSTITION seems to have prevented a full development of China's mineral resources. The people did not dare to dig deep holes into the ground for fear of disturbing the spirits of the earth, so they had to content themselves with open surface cuts where minerals were found. Evidently a gradual change came over them and increasingly deeper shafts have been dug. Many excavations now are of considerable depth, especially in coal and iron mining.

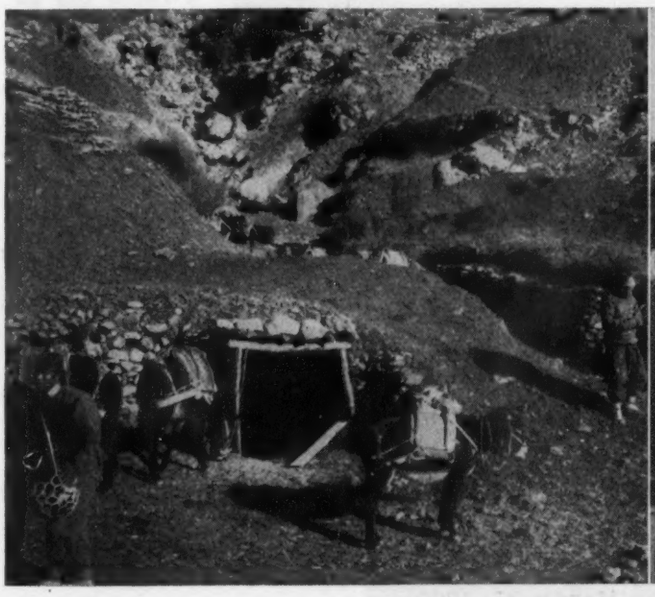
Iron is found in many localities in China and some of the mines have been worked for centuries. It is thought that the supply of ore is not as great as in America and some other countries but there is a large reserve yet untouched. The quality of the ore varies. In some localities it is exceedingly good. The deposits from which the smelting works of the great Han Yeh Ping Co. of Hankow and Hanyang derives its ore probably are among the largest in China and the most extensively worked. They turn out large quantities of pig iron and other iron products.

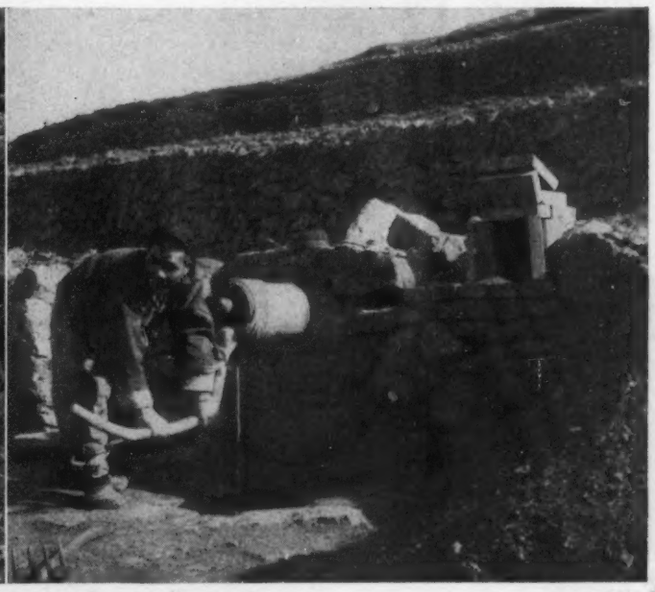
Several other extensive modern plants utilize the iron resources of China. Most of these are under the direction of foreigners and they probably are forerunners of many others which may be developed as soon as the country gets over the turmoil of transition from the old conditions to the new.

An interesting iron producing region which has been operating for a long time is that in the vicinity of Ping Ting Chow (pronounced Ping Ding Jo) in the province of Shansi. These mines are located up in the mountains some distance from the only railway in the province. The methods employed in all the operations are crude and undoubtedly represent the methods used for many centuries in that vicinity.

The antiquity of these workings is evidenced by the immense quantities of refuse and old discarded crucibles to be found near the smelting works.

Fig. 2—Left—Mines Are Located in the Rugged Mountain Sections. Fig. 3—Only in Recent Years Have the Spirits of the Earth Been Braved by Deeper Shafts





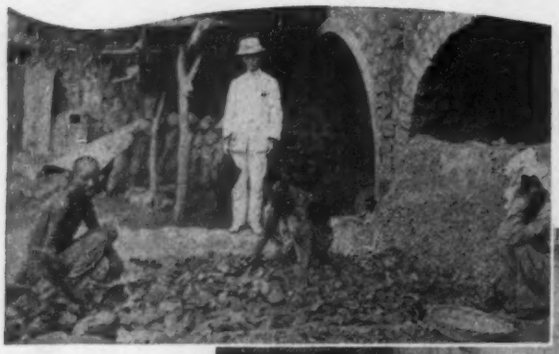


Fig. 4—Above — Laying the Bed of an Iron Smelting Furnace, Using Pieces of Broken Crucibles

Fig. 8—Above — The Contents of Several Crucibles Are Concentrated Before Pouring into Pig Molds

Fig. 5—Above — The Preliminary Roasting is Carried on in Long Crucibles Heated by Coal with Natural Draft

Fig. 6—Below — The Second Operation Requires Forced Draft to Melt the Iron Granules in Smaller Crucibles

Fig. 7—Below — In Taking the Crucibles from the Furnace They Are Rocked to Remove Ashes and Slag

Fig. 9—Below — The Mixture from Several Crucibles Is Poured into Pig Molds Slightly Smaller than the Common Size

Fig. 10—Pack Loads of Coal and Ore at the Mines Are Arranged So That the Saddles May Be Lifted to the Ground Without Unpacking

The ore is reduced in locally made clay crucibles and when the latter are discarded they often are filled with earth and piled up like cord wood to make walls and retaining banks on the hill sides. They are even used to make the side walls of houses and the high walls surrounding the home plat. Such a wall is seen in Figs. 1 and 13.

The ore is taken from small shafts or adits, as shown in Fig. 2, in the hillsides. Fig. 3 shows the headworks of one of these shafts. The hoisting is done by a one-manpower engine. The drum of the hoist is mounted on the end of a horizontal wooden shaft held firmly in place by heavy stones. The drum can be slid off the shaft easily and is carried home at night for safe keeping. The little brick shrine on the wall shelters an image of the spirit of the mine.

The ore is broken up into small pieces and sorted into several grades to be sold to the smelters usually located near the mine. At the smelting works it is packed in crucibles with 50 per cent volume of coal. Coal is abundant in this region.

The crucibles in which the ore is reduced are made locally from clay found in the region. The usual size of the crucibles used in the first step in refining is about 5 inches diameter and 45 inches deep with a spherical bottom. Of course, the clay first has to be pulverized quite fine. The manner of doing this in this locality shows the ingenious thrift of the people. To pulverize this clay by machinery would be too expensive for them so they put it in the trail traversed by the mule and donkey trains transporting materials and let the hoofs of these animals do the work.

The crucibles are packed and placed in rows in a rectangular enclosure made up of earth packed into old discarded crucibles. From 250 to 275 of these long narrow crucibles can be put into one furnace. These are out in the open air. The floor of the furnace on which the crucibles are placed is composed of a thick layer of fragments of old crucibles so as to make a porous and refractory layer through which the air can circulate freely providing natural draft for the fire. Fig. 5 shows the manner of charging or packing these pit furnaces. Coal is packed around and over the crucibles and the fire lighted at the bottom and kept burning around the crucibles for three days.

This first reduction is only preliminary. After the crucibles have cooled sufficiently for handling, they are emptied and the contents divided.

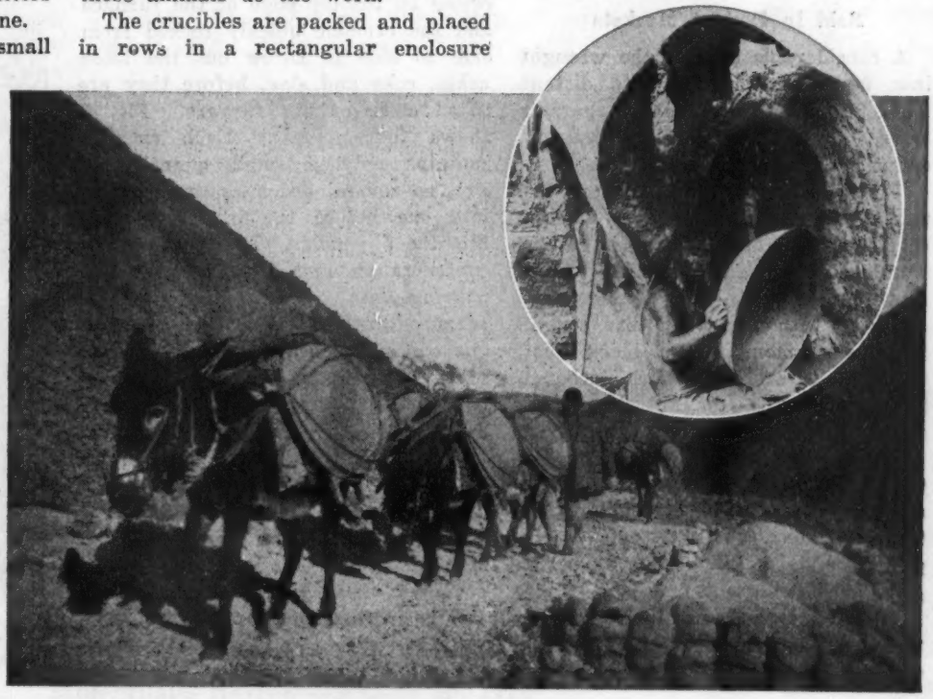


Fig. 11—Pack Loads of Kuo or Iron Cooking Pots Leaving the Smelters for the Coast Towns—The Roads Are Crucible Clay Pulverized for Use by the Hoofs of the Pack Mules. Inset—Thin Cast Iron Pots Made at the Smelter

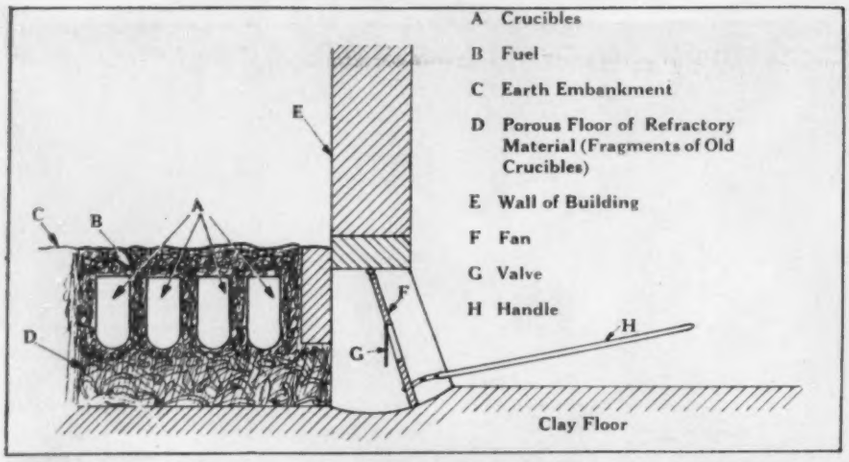


Fig. 12—Cross Section of Forced-Draft, Man-Power Blower Used in the Second Refining Operation

The contents consist of an irregular metallic fragment or bloom, smaller fragments of metallic matter and coke. The bloom often clings to the bottom of the crucible, necessitating breaking the bottom to obtain it.

The bloom is sold to the makers of wrought iron, the low percentage of carbon making it quite malleable. The bloom is worked down into bars in a wood or charcoal fire. The charcoal is made from the roots of scrub oak, stacked in a cave dug out of the side of a hill. The fire is started and the hole nearly stopped up, leaving just enough draft to insure slow burning. These roots are dug and brought to the kiln for 3½ cash per catty, equivalent to about 98 cents a ton United States currency. The charcoal is sold to the smelters at 23 cash per catty, $6.46 United States currency per ton. One of the uses to which this wrought iron is put locally is the making of shovels.

Sold In Distant Markets

A considerable part of the wrought iron finds its way out into distant markets. Shipments of these bars is made by camel train to the railroad about 50 li or 16 miles distant.

The smaller pieces of iron are mixed with coal and placed in smaller crucibles, about 7 inches in diameter and 14 inches high such as those shown in Fig. 6. In packing these crucibles with fuel they also put in a certain amount of a black dust, called *hu tu* or black earth. Although they apparently do not know the composition of this dust, they have found, by experience, that it makes the resulting iron flow freely and enables them to make castings of extreme thinness. This dust is decomposed coal, rich in phosphorus, which gives the iron great fluidity.

Fig. 4 shows the method of laying the floor of a furnace for the second melting. About 80 crucibles are placed in a furnace similar to that for the first process, but the melting is carried on at a greater heat produced by a forced draft. Fig. 12 is a diagram showing the construction of the blower for the forced draft. The furnace is located outside the building, but with the back wall against it. In the back wall is an opening into which is fitted a swinging wing or flap, pivoted at the top, and just clearing a concave hearth of fire clay. The swinging flap is moved back and forth by a long pole which is operated by a man inside the building. The lower part of the flap drives air through the porous material forming the lower part of the bed of the furnace.

When the iron is melted, the cover of fuel is removed from the crucibles and they are lifted out, one at a time, by long handled tongs which grasp the sides as shown in Fig. 7. As they are lifted out, the tongs are rested on the top edge of the furnace and the crucible quickly rocked from side to side to throw out the loose ashes, coke and slag, before they are lifted clear of the furnace. Fig. 7 shows this process. Each crucible contains only a small quantity of iron so several crucibles are emptied into one before the iron is poured into the pig molds. Fig. 8 shows the concentration and Fig. 9 shows the pouring into molds. Usually these furnaces are built in multiples so that one can be opened each day, pouring about 1000 catties a day. A catty is equal to 1 1/3 pounds. This iron sells for 40 cash per catty, equivalent to $11.24 United States currency, per ton.

A total force of 18 men is employed in the smelting work. Native Chinese say that the smelter, where some of these pictures were taken, has been running more or less each year for some 500 years. The workmen all are local residents and when the fields require working at planting and harvest time, the smelters stop work. Also, in the hottest weather of summer and the coldest of winter the smelters are idle.

This pig iron is shipped out by donkey or camel train and for convenience of handling and packing on the saddles it is cast in smaller size pigs than those made in America or England. As the pigs often have to be carried long distances in the saddles, they are packed so that the load can be lifted from the animals' backs without unpacking.

Necessity for economy in the use of metal, centuries ago, taught the Chinese to reduce the amount of metal in any given article to the lowest possible limit. Many articles used in the household or in agriculture by the common people are cast in sections that are surprisingly thin. Many such articles are made in the vicinity of these Ping Ting Chow smelters, utilizing the metal produced there. Among these the cast iron cooking pans are perhaps the most surprising. Fig. 11 shows a donkey train load of these pans on their way to distant markets. These are all made in one general shape like those shown on the donkeys' backs and in the inset of Fig. 11 and in all sizes from 6 to 8 inches to as many feet in diameter. Pans 3 feet in diameter are usually not more than 1/16-inch thick, except at the gate, where the section is a little thicker. The high percentage of phosphorus in the iron used, is the factor which has made these thin castings possible.

Fig. 13—The Boy at the Right Is Sieving Clay Crushed by the Mules Hoofs, Preparatory to Making Crucibles

Large Uses of Steel In Small Ways

APPROXIMATELY 800 tons of iron are consumed annually in the manufacture of bird cages and allied products. Of this amount, possibly 500 tons go into the bird cages alone, and that this tonnage is not almost doubled is due to the fact that a number of the cages are made of brass. At the moment, manufacturers claim the tendency is more toward the use of iron because of the demand for painted cages; however, they add such demands usually run in cycles.

At present there is an increased demand for stands, and according to reliable estimates, those made of iron consume approximately 170 tons. There is probably not more than one stand sold to every 15 dozen cages, but the weight of each stand is relatively heavy. Of the total of 800 tons or so, approximately 130 tons goes into cages for small animals used in laboratories and hospitals, such as guinea pigs, rabbits, etc. These latter cages are more or less of a specialty and are built chiefly of galvanized iron.

Bird cages come in many different sizes and styles, but in the main, those for canaries and smaller birds, such as finches and parokets, are made of 17 gage wires. For canaries, these wires are spaced about ⅝-inch apart, and for the smaller birds about ⅜ to ½-inch apart. Parrot cages, having to be built more stoutly, are made of 12 gage wires. Parrots are destructive and the cages must be built with this in mind. Even the feed and water cups in parrot cages are made of iron. Parrot cages seldom are painted, for the parrot neither flies nor hops in its cage, but rather climbs around on the wires by aid of its beak. Were the cages painted, the enamel would be eaten off in a short time. These cages generally are made of tinned iron wires.

Bird cages pass through many hands in the process of manufacture. The round vertical wires and also the flat, horizontal wires which are used for cross-rails, come in coils and have to be straightened and cut to length. The cross rails then are drilled and the round, upright wires next are passed through the cross rails and either stamped or riveted, provision being made at this stage for door springs, short rails over which the bottom hooks are clamped, cup openings and perch marks. The passing of the upright wires through the horizontal flat wires is done either by hand or machinery, and where the latter is the case, the passing of the wire and the riveting or stamping is done in one operation.

The frame then is bent at right angles for square cages, or rounded on a roller for round cages, the two free ends of the flat rails being joined by means of small flat tubes. This rough cage body is placed on a form and the irregular strands of wire

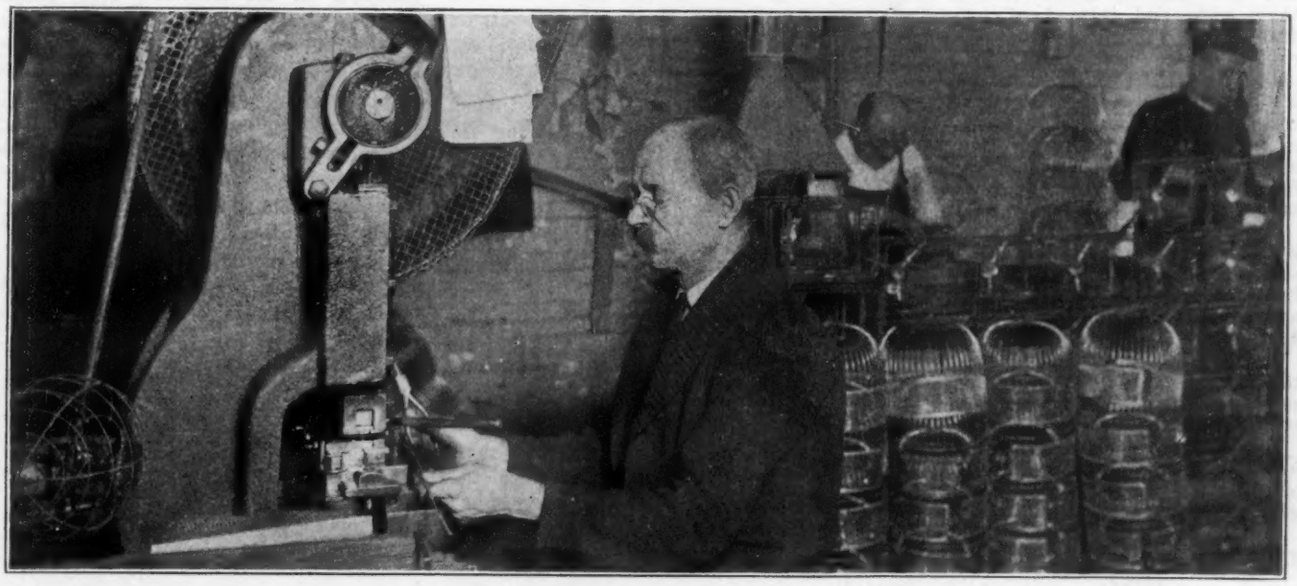
(*Concluded on Page* 807)

Bird Cages

THIS is the sixtieth of a series of articles dealing with some of the abscure uses of steel which go far toward absorbing the great American tonnage.

The first article on "corsets" appeared Nov. 22, 1923. Other articles appearing fortnightly since are:

Pins	*Pens*
Cotton Ties	*Steel Wool*
Toys	*License Plates*
Spinning Rings	*Hypodermic Needles*
Card Clothing	*Shoe Steel*
Tie Plates	*Crushed Steel*
Tacks	*Skates*
Knives and Forks	*Needles*
Surgical Instruments	*Phonograph Needles*
Fence Posts	*Golf Clubs*
Eyeglass Cases	*Mechanical Pencils*
Fishing Tackle	*Burial Caskets*
Dental Drills	*Telephones*
Pocket Knives	*Radio Towers*
Rat Guards	*Brushes*
Snap Fasteners	*Electric Bells*
Paper Clips	*Bookbinder Wire*
Steel Vests	*Sucker Rods*
Electrical Conduit	*Watch Hands*
Radiator Furniture	*Steel Furniture*
Notebooks	*Highway Markers*
Metal Beds	*Camp Cots*
Bolts and Nuts	*Flexible Shaft*
Metal Lath	*Wood Pipe*
Tin Cans	*Buttons*
Umbrellas	*Sheet Metal Screws*
Steel Barrels	*Rivets*
Washers	*Billboards*
Overall Trimmings	*Razor Blades*



Making High Grade Steel-VIII

Large Quantities of Hand and Hack Saw Metal Produced in Electric Furnaces—Processing Includes Numerous Hand and Mechanical Operations

By John A. Coyle

STEELS used in the manufacture of cross-cut and high-powered mechanical saws differ in quality from those used for hack and hand saws. Electrically melted steel, properly made, supplies the need at present. Steel and woodworking tools, which are consumed more from abuse than by use, include auger bits, chisels, cross-cut saws, files, gin saws, hack saws, hand saws, plane irons. raisin saws, and shovels.

Auger bits lose their cutting points and are thrown aside. Chisels lose their edge and instead of being redressed in the majority of warranted cases, they are abandoned or used as wedges, etc. Cross-cut saws are left in the cut and ruined by the tree falling. Files, on dropping their cutting points are thrown into scrap and an order on the tool room issued for a new one. Gin saws rust and are ruined.

Hack saws frequently are pushed beyond their cutting power or are snapped fitting them to frames; frames and saws frequently are spoiled by heavy loads placed or dumped on them.

Hand saws are not refiled or reset to conserve them, and rusting and sawing of nails helps in their destruction.

Plane irons strike a knot or nail head, have their cutting edge snapped off, and are scrapped rather than reground and honed.

Raisin saws are abused just as are gin saws.

Shovels are used for purposes beyond their capacity. They are spoiled by fall of a rail, a cross-over or switch part.

Eighty to 90 per cent of the country's total consumption of hack saws is made in one plant from electrically-melted steel. The tri-standard analyses of the present electrically-melted hack saw steel is shown in one of the accompanying tables. The analyses shows the variations demanded by users, supposedly on account of toothing, hardening and flattening processes. The first three analyses or their variations can be used to make good hack saws.

In melting the first heats of electric steel for hack saws, striving for a quality comparably as close as possible to the original Swedish base crucible melted steel, the charge originated was 4000 pounds of washed metal, 4000 pounds tungsten-contained scrap and 6000 pounds of high-grade mill scrap. Because of the high percentage of washed metal cutting the furnace lining and effecting the furnace bottom, the quantity of washed metal had to be reduced and the percentage of tungsten-contained and best mill scrap increased to balance the weight of the furnace charge. At times remelts of tungsten-contained scrap are justified, if it is not far enough removed from virgin material to impair its qualities. The melters and workmen became artists in the successful making of such steels. The worst hardship exists from the extra steps toward variations from standards, accumulation of parts of heats, danger of mixup in the mill, etc.

Crucible melted steel for hack saws still is marketed, but the flood of hack saw steel sheets from Great Britain was checked by the principal producer in the hack-saw steel field. Electric steel ingots of a suitable size are ground to remove dirt spots after the fins from the mold are knocked off, the steel is reduced to a thickness, width and length suitable for molders for the order to be rolled as governed by the sheet size required. After that operation the cogged blanks are inspected before charging into the furnaces at the mold out mill, where the material is matched and rolled to required thickness and length.

The mills at the plant in question produce double to triple the quantity of hack saw sheets per turn compared with older mills. The roll stands must be level and firm on their foundations, windows of housings well and accurately machined, rolls of proper hardness and turned with proper cross or concavity, roll necks

riding smoothly on brass journal bearings to avoid frictional loads and preserve the life of rolls themselves, mills adequately powered and served by men trained to roll carbon-tungsten steels into sheets.

A hot inspector takes the finished sheets from the mill and co-operates with the roller in maintaining the proper gage or thickness. In this way maximum yield and minimum scrappage is obtained. Some consumers desire the sheets annealed, others want them stiff. One wants sheets with a loosened scale from the annealing and another with the hot roll planish.

Weighing before shearing is performed as a productive cost check. The sheets are micrometer inspected by trained men. Unsuitable material is put aside for reclassification or rerolling. The micrometered sheets meeting specifications are sent to the shears and trimmed to width and length, and finally are passed to the scale inspector for verification of gage by weight.

Gin saw steel, a highly planished product, and linter saws originally were imported from Great Britain. The standard analysis was 0.85 to 0.95 per cent carbon, 0.25 to 0.35 per cent manganese, 0.050 per cent silicon and 0.055 per cent maximum phosphorus and sulphur. The planish of the sheets always has been of importance. Pittsburgh quality mills duplicated the product, which originally was Swedish bessemer, making the steel in crucibles. High-carbon bessemer slabs then were used and finally acid open-hearth steel. A considerable quantity is used, the highest standard of analysis ranging from 0.65 to 0.75 per cent carbon, 0.55 to 0.70 per cent manganese, 0.20 to 0.30 per cent silicon and 0.055 per cent maximum phosphorus and sulphur. Inspection demands fairly accurate gage and tightness of planish. If any small area of broken planish or scale develops the sheets are fabricated into a low-grade thin hand saw. Gin saw steel is a product analagous with what we call planished stove body steel or Russia iron.

Raisin saw steel for raisin seeding generally is not required in such tonnage as warrants particular processing as with hack-saw and gin-saw steel.

House building, making crates and boxes, artistic fashioning of high-class furniture and cabinet work, etc. calls for volume production of hand saw steel. The best hand saw blades bear the etched name and trade mark of the master maker. Common saws often are branded with the name and trade mark of a hardware dealer or supply house, and in a measure serve as an advertising medium. Some supply houses frequently have the best saws with their name and trade mark. The design or pattern and the character of the teeth make hand saws a widely assorted product. Hand saw quality has been improved because of the grade of steel. The difference between former and present standards is that the present standard includes nickel, which makes the blades tough and rigid. Typical electric hand-saw steel contains from 1.42 to 1.50 per cent nickel, 0.93 to 0.99 per cent carbon, 0.25 to 0.30 per cent manganese, 0.188 to 0.223 per cent silicon, 0.013 to 0.018 per cent phosphorus and 0.015 to 0.019 per cent sulphur.

The processing of hand saws follows the processing of hack saws closely in giving them their performance powers, but there are many more semimanual and semimechanical operations in making saws of this type. There is more working space and larger tools are required for hand saws than hack saws. Uncovering lightly hidden defects is of more frequent occurence with hand saws than hack saws. Assorting for reworking because of defects requires more space in the case of hand saws

Steel for shovels formerly was a crucible melted product, from a discriminating selection of suitable scrap. Iron did not form a part of the crucible charge as with the other products discussed. It was the custom to write into the contract "shovel steel sheets as per list of gages, rolled from ingots the product of raw materials melted in 100-pound crucible charges." For all customers who did not so specify, slabs were made under a hammer from ingots cast from a 15-ton acid open-hearth furnace, rolled into sheets, sheared to blanks, bundled and shipped. The specialty mill made it possible for users to buy less expensive shovels, spades, scoops, etc., made from high-grade acid open-hearth steel.

Analyses of Hack Saw Steel

	C	Mn	Si	P	S	W
Standard	1.15 to 1.25	0.30	0.20	0.020	0.020	1.15 to 1.25
Variation No. 1	1.05 to 1.15	0.30	0.20	0.020	0.020	1.15 to 1.25
Variation No. 2	1.20 to 1.30	0.24	0.20	0.020	0.020	1.12 to 1.18
Variation No. 3	1.20	.....	.....	.....	.....	1.25
Variation No. 4	1.15	.....	.....	.....	.....	1.20
Variation No. 5	1.10	.....	.....	.....	.....	1.15

Typical Analyses of Saw and Shovel Steel

Commodity	C	Mn	Si	P	S	W	Process
English hack saw	1.28	0.23	0.20	0.016	0.016	1.00	Crucible
American hack saw	1.05	0.33	0.19	0.019	0.023	1.15	Crucible
Hand saw No. 1	1.00	0.19	0.16	0.023	0.017	.....	Crucible
Hand saw No. 2	0.95	0.24	0.18	0.029	0.019	.....	Crucible
Hand saw No. 3	0.90	0.30	0.20	0.035	0.021	.....	Crucible
Raisin saw	0.95	0.45	0.17	0.025	0.027	.....	Crucible
Gin saw	0.65 to 0.75	0.55 to 0.70	0.20 to 0.30	0.055*	0.055*	.....	Acid o.h.
Shovel steel	0.65 to 0.75	0.55 to 0.70	0.20 to 0.30	0.055*	0.055*	.....	Acid o.h.

*Maximum 0.75 to 0.85 carbon, if steel is of basic open hearth quality.

Large Uses of Steel —Bird Cages

(*Concluded from Page* 805)

gathered to a center plate, trimmed and soldered together. Following are such operations as soldering of the door catches, fastening of door springs, forming of cup openings, sawing out the door, eliminating of superfluous pieces of projecting wires and other minor details.

The square bottoms, if plain, are formed in stamping dies, and then punched so that the hooks can be riveted into place to hold the cage body and bottom together. Round bottoms also usually are stamped. Molding bottoms, with drawers, are made up of four sections which are joined by means of plates and rivets. The knobs for iron cages are either stamped or spun of zinc or brass. They sometimes consist of several sections. Knobs are kept in place by means of a screw hanger and nut.

In the finishing process, the cage first is given an oil dip, then another of white lead solution. The cage is sprayed with a white lead and zinc mixture, and placed for 12 hours in a drying room heated to 150 degrees.

The cage stands are composed principally of two sizes of pipe, one the upright and the other the so-called branch, and a cast iron base. These stands are usually five feet, eight inches over all in height. Uprights are about three feet long on an average, and are ⅜, ½ up to one inch in diameter. They come threaded and in specified lengths.

Low Prices Hold Down Profits

for Steel Corporation

Annual Report of Leading Steel Producer Reveals Decline of $3.80 a Ton for Domestic Shipments in 1925 Compared with Preceding Year—Outputs and Shipments Gain Over 1924

Nineteen twenty five brought substantial gains in demand and production in the iron and steel trade but it also brought lower prices and very little improvement in profits. These facts are made clear by the twenty-fourth annual report of the United States Steel Corp. just made public by Chairman E. H. Gary. Coming at a time when the Corporation is celebrating the twenty-fifth anniversary of its birth, the report holds exceptional interest this year. It shows that although the great organization during the quarter century of its existence increased its aggregate assets by $1,000,000,000, expanded its productive capacity by 118 per cent and increased the number of its employes from 168,000 to 249,833, its earning power has increased practically none at all. In 1925 the Corporation reports net earnings available for dividends, after charges, of $90,602,000. In 1902 the first full year of operations the net for dividends was $90,306,000. The increase in earnings in 1925 over 1902 was only $296,000 or about 3 per cent.

The explanation of this situation lies in the phase of keen competition, among producers, close piecemeal buying by consumers, low prices and narrow profits, through which the iron and steel industry now is passing. Chairman Gary points out that in 1925 overage prices for finished products sold by the Corporation to the domestic trade showed a recession of $3.80 a ton from one year before. The average reduction, according to Chairman Gary, "extended against the total tonnage shipped, represents an aggregate decrease of $51,500,000 in gross sales proceeds." Shipments in 1925 of all products gained 16 per cent over 1924. The comparative record follows:

Domestic Shipments

	1925 Tons	1924 Tons
Rolled and finished steel products	12,340,010	10,493,102
Pig iron, ingots, ferro and scrap	213,479	271,418
Coal, coke and iron ore	761,676	289,561
Sundry materials and by-products	124.019	118,681
Total tons of all kinds of materials, except cement	13,439,184	11,172,762
Universal Portland cement (Bbls.)	14,753,487	14,941,143

Export Shipments

Rolled and finished steel products	1,048,836	1,033,788
Pig iron, ferro and scrap	4,970	3,089
Sundry materials and by-products	130,562	115,141
Total tons of all kinds of materials	1,184,368	1,152,018
Aggregate tonnage of rolled and finished steel products shipped to both domestic and export trade	13,388,846	11,526,890

Total value of business (Covering all of above shipments, including cement, completed cars, ships, barges and car floats delivered and other business not measured by the ton unit)	1925	1924
Domestic (not including inter-company sales)	$847,089,777	$763,251,221
Export	81,060,949	79,718,221
Total	$928,150,726	$842,969,442

The statement shows that the principal gain in shipments was in the items of coal, coke and iron ore, the increase for these items being 163 per cent. Rolled and finished steel products increased 17.6 per cent. The item to show a decrease were pig iron ingots, ferro and scrap with a decline under 1924 of 21 per cent. Portland cement shipments also declined slightly. In 1924 Portland cement shipments were the only important product of the Steel corporation to show a gain over the preceding year.

The ratio of exports to total shipments in 1925 was less than 9 per cent. This compares with a ratio of exports to total shipments in 1924 of nearly 10 per cent. In 1923 the ratio was 8.9 per cent and in 1922 it was 9.8 per cent. In 1921 the ratio of exports to aggregate shipments was 15 per cent. Thus it is seen that in recent years of relative domestic prosperity the Corporation has sold an average of a little less than 10 per cent of its output into foreign markets. Gross sales of the Corporation in 1925, excluding intercompany sales, total $928,150,726, compared with $842,969,442 in 1924. This was an increase of 10 per cent over the total for the preceding year.

The aggregate tonnage of products for sale over 1924 shows a healthy gain. The total was 13,271,000 tons against 11,723,000 tons in 1924 an increase of 13 per cent. In 1923 the production of finished products by the Corporation was 14,721,469 tons.

The Steel corporation in 1925 again failed to achieve an adequate return on the value of its investment. The total earnings for the year, after making allowances for estimated federal

Statistics of Steel Corporation Since Founding

Year	Gross receipts	*Net earnings	Balance capital expenditures	Production steel ingots gross tons	Production finished steel for sale, net tons	Shipments finished products, net tons	Number of employes
1925	$1,406,505,195	$173,783,424	$70,893,944	18,898,697	13,271,010	13,388,846	249,833
1924	1,263,711,468	161,183,467	79,619,986	16,478,857	11,722,908	11,526,890	246,753
1922	1,092,697,772	109,788,916	23,551,991	16,082,385	11,785,331	11,911,904	214,931
1921	986,749,719	100,791,279	70,091,866	10,966,347	7,860,334	7,958,833	191,700
1920	1,755,477,025	185,095,359	102,956,133	19,277,960	14,228,502	14,098,707	267,345
1919	1,448,557,834	152,290,639	87,091,514	17,200,373	11,997,935	12,243,183	252,106
1918	1,744,312,168	208,281,104	129,855,037	19,583,493	13,849,493	14,124,986	268,710
1917	1,683,962,552	304,161,471	117,977,117	20,285,061	14,942,911	15,370,105	268,058
1916	1,231,473,779	333,574,177	64,680,648	20,910,589	15,460,792	15,542,088	252,668
1915	726,683,589	130,396,011	15,537,431	16,376,492	11,762,639	10,982,748	191,126
1914	558,414,933	71,663,615	28,171,013	11,826,476	9,014,512	9,078,559	179,353
1913	796,894,299	137,121,844	41,999,098	16,656,361	12,374,838	12,168,758	228,906
1912	745,505,515	108,174,673	13,780,361	16,901,223	12,506,619	12,696,935	221,025
1911	615,148,839	104,305,466	49,430,851	12,753,370	9,476,248	9,460,169	196,888
1910	703,961,424	101,054,754	53,101,221	14,179,369	10,733,995	10,727,751	218,435
1909	646,382,251	131,491,414	37,916,250	13,355,189	9,859,660	9,691,290	195,500
1908	482,367,840	91,847,710	49,422,697	7,838,713	6,206,832	7,102,456	165,211
1907	757,014,767	160,964,078	66,981,252	13,099,548	10,376,742	10,451,488	210,180
1906	696,756,926	156,624,273	32,155,146	13,511,149	10,578,433	10,862,425	202,457
1905	535,331,736	110,787,653	24,395,408	11,995,239	9,226,386	.....	180,158
1904	444,405,430	73,176,522	17,957,946	8,406,378	6,792,780	.....	147,343
1903	536,572,871	100,171,152	31,042,135	9,167;960	7,635,690	.....	167,709
1902	560,510,479	133,303,763	16,586,531	9,743,918	8,197,232	.....	168,127
1901	.....	84,779,293	.....	8,854,820	.....	.....	.....

*After federal taxes.

PRODUCTION
OF
RAW, SEMI-FINISHED AND FINISHED PRODUCTS BY SUBSIDIARY COMPANIES IN THE YEARS 1925 AND 1924

PRODUCTS	1925	1924	1925 Increase	%
ORES MINED	*Tons*	*Tons*	*Tons*	
In the Lake Superior Region (*Iron Ore*)				
Missabe and Vermilion Ranges	21 151 499	17 864 794	3 286 705	18.4
Gogebic, Menominee and Marquette Ranges	3 097 330	3 167 716	70 386*	2.2*
In the Southern Region—Alabama (*Iron Ore*)	3 607 832	3 690 262	82 430*	2.2*
In Brazil, S. A. (*Manganese Ore*)	140 184	51 769	88 415	170.8
Total	27 996 845	24 774 541	3 222 304	13.0
LIMESTONE QUARRIED (*Includes Dolomite and Fluorspar*)	5 344 893	5 033 889	311 004	6.2
COAL MINED				
For use in the manufacture of coke	23 692 607	21 041 573	2 651 034	12.6
For steam, gas and all other purposes	7 782 961	6 696 434	1 086 527	16.2
Total	31 475 568	27 738 007	3 737 561	13.5
COKE MANUFACTURED				
In Bee-Hive Ovens	3 289 905	3 265 899	24 006	.7
In By-Product Ovens	13 011 319	11 142 142	1 869 177	16.8
Total	16 301 224	14 408 041	1 893 183	13.1
BLAST FURNACE PRODUCTION				
Pig Iron	14 651 481	12 520 329	2 131 152	17.0
Spiegel, Ferromanganese and Ferrosilicon	147 518	163 400	15 882*	9.7*
Total	14 798 999	12 683 729	2 115 270	16.7
STEEL INGOT PRODUCTION				
Bessemer Ingots	4 389 328	3 856 559	532 769	13.8
Open Hearth Ingots	14 509 369	12 622 298	1 887 071	15.0
Total	18 898 697	16 478 857	2 419 840	14.7
ROLLED AND FINISHED STEEL PRODUCTS FOR SALE				
Steel Rails (Heavy and Light Tee and Girder)	1 518 424	1 392 668	125 756	9.0
Blooms, Billets, Slabs, Sheet and Tinplate Bars	809 946	612 326	197 620	32.3
Plates	1 425 506	1 280 831	144 675	11.3
Heavy Structural Shapes	993 241	1 019 923	26 682*	2.6*
Merchant Bars, Hoops, Skelp, Light Shapes, etc.	2 805 302	2 313 994	491 308	21.2
Tubing and Pipe	1 402 809	1 248 378	154 431	12.4
Wire Rods	177 567	147 336	30 231	20.5
Wire and Wire Products	1 451 103	1 290 704	160 399	12.4
Sheets (Black and Galvanized) and Tinplates	1 640 521	1 411 075	229 446	16.3
Finished Structural Work	496 057	477 082	18 975	4.0
Angle Splice Bars and All Other Rail Joints	268 690	220 792	47 898	21.7
Spikes, Bolts, Nuts and Rivets	64 945	58 364	6 581	11.3
Axles	78 988	93 183	14 195*	15.2*
Steel Car Wheels	58 274	75 328	17 054*	22.6*
Sundry Steel and Iron Products	79 637	80 924	1 287*	1.6*
Total	13 271 010	11 722 908	1 548 102	13.2
MISCELLANEOUS PRODUCTS				
Zinc	69 231	61 982	7 249	11.7
Sulphate of Iron	25 076	22 483	2 593	11.5
Fertilizer—"Duplex Basic Phosphate"	11 852	13 009	1 157*	8.9*
Fertilizer—Sulphate of Ammonia	183 248	157 961	25 287	16.0
Ammonia (as Liquor)	1 059	811	248	30.6
Benzol Products	161 906	140 314	21 592	15.4
	Bbls.	*Bbls.*	*Bbls.*	
Universal Portland Cement	15 722 000	15 156 000	566 000	3.7

income tax, were $165,538,464, compared with $153,114,811 in 1924. There was a loss, however, compared with 1923 when the total earnings amounted to $179,646,674. The balance of earnings before dividends was $90,602,652 compared with $85,067,191 in 1924 and with $108,707,064 in 1923. The net increase was about 6 per cent which compares with an increase in total sales of more than 10 per cent. In 1925 the corporation paid regular 7 per cent on its preferred stock and a regular dividend of 5 per cent and an extra one of 2 per cent on its common stock. The surplus net income after dividends was $29,801,800 compared with $24,266,339 in 1924. The sum of $25,000,000 was appropriated to be expended for improvements on plants in 1925 compared with $20,000,000 so appropriated in 1920 and 1924 and $40,000,000 in 1923. The balance carried to undivided surplus last year was $4,801,800 and in 1924 it was $4,266,339.

Shipments of rolled and finished products in 1925 clearly showed the lack of accumulation of inventories on the part of the Steel corporation. The report shows that 117,000 tons more of rolled and finished steel products were shipped than were produced. In 1924 shipments were less than outputs by 196,018 tons. In 1923 shipments lagged behind production by 347,600 tons. Nothing could more vividly illustrate the careful restraint held upon production in the iron and steel business than the showing of shipments last year. Buyers have been reluctant to place large orders in advance and on their part, producers have avoided making more steel than consumers called for. Outputs have been held a little under shipments and demand.

The tax burden of the corporation was higher in 1925 than it was in 1924. Out of earnings were taken $35,298,993 for state and other local taxes. This was $3,785,682 more than were taken out in 1925. Federal income capital stock and excise taxes accounted for $15,624,198, an increase of $1,860,654 over 1924. All told, the Corporation paid $15,923,191 in taxes of all kinds, compared with $45,276,855 in 1924.

Large sums were laid out for capital expenditures. The net amount for this purpose was $70,893,944. For manufacturing properties, exclusive of by-product coke plants, the Corporation spent $60,455,967. Coal properties required $3,777,839 and iron ore properties took $2,062,517. The Corporation expended a smaller sum on railroad transportation last year than it did in 1924. The total amount was $4,711,977. For the water transportation properties, including Great Lakes fleet, ocean fleet and river transportation service, the sum of $2,761,759 was expended.

Discussing the problem of expenditures for additions, Chairman Gary says:

"It is obvious that under competitive conditions prevailing, all manufacturing plants must be kept up to

COMPARATIVE INCOME ACCOUNT
For the Fiscal Years ending December 31, 1925 and 1924

	1925	1924	+Increase —Decrease
EARNINGS—Before charging interest on Bonds and Mortgages of Subsidiary Companies:			
First Quarter	$41 849 764 09	$52 129 738 62	— $10 279 974 53
Second Quarter	42 634 705 17	43 407 005 15	— 772 299 98
Third Quarter	44 523 558 12	32 715 060 16	+ 11 808 497 96
Fourth Quarter	44 775 397 22	32 931 664 06	+ 11 843 733 16
Total for year	*$173 783 424 60	*$161 183 467 99	+ $12 599 956 61
Less, Interest on outstanding Bonds and Mortgages of the Subsidiary Companies	8 244 959 93	8 068 656 07	+ 176 303 86
Balance of Earnings	$165 538 464 67	$153 114 811 92	+ $12 423 652 75
Less, Charges and Allowances for Depletion and Depreciation applied as follows, viz.:			
To Depreciation and Replacement Reserves and Sinking Funds on Bonds of Subsidiary Companies	45 463 053 99	38 687 668 14	+ 6 775 385 85
To Sinking Funds on U. S. Steel Corporation Bonds	10 623 625 44	10 205 168 92	+ 418 456 52
Net Income in the year	$109 451 785 24	$104 221 974 86	+ $5 229 810 38
Deduct:			
Interest on U. S. Steel Corporation Bonds outstanding	17 761 388 75	18 274 207 49	— 512 818 74
Premium Paid on Bonds redeemed by Sinking Fund, viz.:			
On Subsidiary Companies' Bonds	222 329 77	182 350 09	+ 39 979 68
On U. S. Steel Corporation Bonds	880 439 61	785 295 44	+ 95 144 17
Balance	$90 587 627 11	$84 980 121 84	+ $5 607 505 27
Add: Net Balance of sundry receipts and charges, including adjustments of various accounts	15 025 78	87 069 77	— 72 043 99
	$90 602 652 89	$85 067 191 61	+ $5 535 461 28
Dividends on U. S. Steel Corporation Stocks, viz.:			
Preferred, 7%	25 219 677 00	25 219 677 00	.....
Common, Regular 5%, Extra 2%	35 581 175 00	35 581 175 00	....
Surplus Net Income	$29 801 800 89	$24 266 339 61	+ $5 535 461 28
Less, Sums appropriated and expended or to be expended account of additions, improvements or betterments to plants and property	25 000 000.00	20 000 000 00	+ 5 000 000 00
Balance carried forward to Undivided Surplus	$4 801 800 89	$4 266 339 61	+ $535 461 28

*Balance of Earnings after making allowances for estimated amount of Federal income taxes.

modern and high standards. During the year the Shoenberger plant and property at Pittsburgh were sold and the following plants were abandoned and dismantled: blast furnaces at Niles, Steubenville, Milo and Newburgh, Ohio (4 furnaces). The Painter works and Clark works in Pittsburgh, the Monessen, Pa., works, Sharon, Pa., works, Columbus, O., works, Syracuse, N. Y., 2 plants, and the Detroit, and Edge Mox, Del., structural plant at Pittsburgh. At the Homestead works of the Carnegie Steel Co. the 33, 38 and 40-inch blooming mills were dismantled, being replaced by a new 44-inch blooming mill."

"The reduction in productive capacity arising from these disposals and abandonments was 614,000 tons of pig iron, 614,000 tons of ingots, 548,000 tons of blooms, ingots and sheet bars and 355.000 tons of finished rolled products. This capacity to a considerable extent has been as to its potential character diminishing during recent years as additions and improvements at other plants have been made in anticipation of these abandonments. The investment costs in the properties abandoned, other than the real estate, have been fully charged off against depreciation reserves approved during the life of the plants. This same accounting disposition is also given to all property and facilitites from time to time rebuilt or replaced.

"Under prevailing price indexes for labor, material, equipment, etc., and modern standards of construction investment cost for replacing an equal productive capacity discarded totals from two to four times the investment cost of the old. In short, if producing capacity has to be replaced a very much greater capital investment is required. A conservative policy demands that so far as possible and practical, these excess capital requirements should be provided from current income rather than by added capital obligations. As will be noted from the income account statement there were appropriated $25,000,000 from surplus net incomes of the year 1925 for the formal financing from that source of capital expenditures. The amount is carried in a distinctive account in the balance sheet as appropriated service to cover capital expenditures. There has also been transferred to this account $14,101,085 from sundry reserve accounts, set aside to that account during the war period, for contingent liabilities which might arise but now no longer required for that purpose."

The company's consolidated balance sheet as of Dec. 31, 1925 discloses current assets at $553,005,204. This compares with current assets of $550,620,744 one year before. Liabilities at the close of the year were $116,918,163 compared with $122,595,117 one year before. Inventories at the close of 1925 totaled $285,667,394, showing little change from the inventories of $285,041,753 twelve months before.

The production of steel ingots of the Corporation in 1925 was 18,898,697 tons, a gain of 14.7 per cent over the total of 16,478,857 tons in 1924. In 1923 ingot output was 20,329,950 tons. Pig iron production of 14,651,000 tons was 17 per cent greater than that of 12,520,000 tons in 1924.

In the groups of rolled and finished steel products for sale the item of blooms, billets, slabs, sheet and tin plate bars show the largest percentage increase over 1924. The total for the year was 809,946 tons, a gain of 32.3 per cent over 1924. Plates increased 11.3 per cent and total finished output gained 13.2 per cent.

Wage Rates Unchanged

The report says that no general changes were made in wage rates during 1925. It is significant to note that although output of finished material increased about 13 per cent in 1925 compared with 1924, the number of empoyes in the manufacturing properties increased only 1.1 per cent. This reflects some gain in efficiency on the part of labor but it also is evidence, taken with 1924, when employment dropped only 5 per cent while production dropped 20 per cent of the stability of the employment level of the corporation.

Employment fluctuates between more narrow limits than does production. The average number of employes in all properties in 1925 was 249,883 compared with 246,753 in 1924. In 1923 there were 260,786 employes. In 1925 the output of finished steel per man was about 53 tons against about 48 tons in 1924 and 56 tons in 1923. The average number of employes in all companies during the year and the total salaries and wages paid, as compared with 1924, follow:

	Employes of 1925 Number	1924 Number
Manufacturing properties	179,040	177,078
Coal and coke properties	25,920	26,054
Iron ore properties	14,305	15,022
Transportation properties	25,596	24,264
Miscellaneous properties	4,972	4,335
Total	249,833	246,753
Total wages and salaries	$456,740,355	$442,458,577
Largest number of employes in any one month	(March) 258,946	(March) 272,688
Smallest number of employes in any one month	(July) 241,815	(August) 225,214
Average earnings per employe per day for year:		
All employes, exclusive of general administrative and selling force	$5.77	$5.74
Total employes, including general administrative and selling force	$5.88	$5.85

The total payroll for the year was $456,740,355, an increase of 3.2 per cent over the total of $442,458,577 in 1924. The average salary or wage per employe in 1924 was $5.88 per day, an increase of 3 cents.

Concerning the employes' stock subscription plan the report says:

"The privilege of subscribing for shares of common stock of the United States Steel Corp. was again extended to employes in January 1926 at the price of $136 a share. To the date of writing this report subscriptions have been received from 37,244 employes for a total of 37,351. Dec. 31, 1925 there were 47,647 employes who were registered stockholders holding an aggregate of 163,802 shares of preferred and 501,999 shares of common stock of the corporation. This time last year subscriptions had been received from 39,470 employes for a total of 82,948 shares at $125 a share."

On Dec. 31, 1925 there were 149,649 registered stockholders of whom 16,701 held both preferred and common stock. The number of registered preferred stockholders was 75,493 and of common, 90,857.

On Feb. 25 the Steel corporation rounded out the first quarter century of its corporate existence having been incorporated on Feb. 25, 1901. It began its actual business life on April 1, 1901. On that date the corporation had a surplus provided of $25,000,000. The balance of surplus accumulated since then has been $496,863,109 which, added to the original surplus, makes a total as of Dec. 31, 1925, of $521,863,109.

The balance of profits over the 25-year period was $2,185,712,403. Dividends paid during the quarter century amounted to 173¼ per cent on the preferred stock, aggregating $647,709,783. On the preferred stock dividends of 124¼ per cent were paid, aggregating $631,544,001. Total dividends of $1,279,253,784 have been paid by the Corporation from its formation to date.

Penn Seaboard Retires Its Funded Debt

The entire funded debt of the Penn Seaboard Steel Corp., together with other indebtedness, to the amount of $1,635,498 was liquidated during 1925, according to the pamphlet report of the company for the year. The items of deferred charges and reserves for depreciation were also reduced by approximately $297,000 and $535,000 respectively.

The retirement of these debts, according to President J. B. Warren, has effected a considerable saving in interest charges. This item was $32,194 in 1925 compared with $156,228 in 1924. During the year the company earned a manufacturing profit of $180,914 and shows a net loss of $82,412, after ex-

penses and interest. In 1924 there was a net loss of $329,803. The profit made by the company during the latter part of the year was insufficient to offset the earlier losses, it is explained.

"Heretofore, the New Castle plant has made a semifinished product, namely ingots, blooms and billets," says President Warren. "During the year the management started installation of equipment for the purpose of converting this semifinished material into finished product. This equipment consists of four mills designed primarily for low cost production of alloy and carbon steel bars. The first mill will be ready for operation March 15 and the remaining three on May 1. These mills have a total monthly capacity of approximately 18,000 tons. These improvements permit the company to manufacture a line of diversified products, thus assuring more uniform operations."

Bethlehem Earnings Rise in 1925

BOTH outputs and earnings of the Bethlehem Steel Corp. increased in 1925 compared with the preceding year, according to the annual pamphlet report just made public. Gross sales in 1925 were $273,025,320 against $243,904,265 in 1924. The net income available for dividends was $13,858,196 compared with $8,916,181 in 1924.

Discussing the general situation the report, signed by Chairman C. M. Schwab and President E. G. Grace, says that 1925 was in many ways the most remarkable year in the history of the steel industry of this country. Although demand and outputs were high, prices declined.

"Notwithstanding the unprecedented demand for steel products, prices turned downward during the first two months and remained low throughout the year" says the report. "The average billing prices of rolled steel and other finished products shipped by your corporation during the year were $3.48 per ton less than the average for 1924, and $7.48 per ton less than the average for the first quarter of 1924."

Operations of the plants of the company in 1925 averaged 70.3 per cent of capacity compared with 58.2 per cent in 1924. For the first quarter the percentage of operations was 77.5; for the second quarter it was 67.1; for the third quarter it was 59.7; and for the fourth quarter it was 77.

During 1925 the corporation shipped 3,830,895 tons of rolled and other finished steel against 3,235,127 tons in 1924. Orders on hand at the close of the year amounted to 802,293 tons valued at $70,566,923 compared with 750,910 tons valued at $77,049,619 one year before. The average number of employes last year was 60,098 compared with 57,049 in 1924. Wages paid totaled $107,771,949 compared with $98,900,667. Average earnings per hour, exclusive of administrative and selling force, were 62.2 cents per hour compared with 62.7 cents in 1924.

The comparative income account follows:

	1925	1924
Gross sales	$273,025,320	$243,904,265
Expenses, tax, etc	236,882,321	212,413,959
Profit	$ 36,142,999	$ 31,490,306
Other income	2,845,743	2,506,184
Total income	$ 38,988,742	$ 33,996,490
Interest, discount, etc.	13,125,562	13,233,418
Depreciation, etc	12,004,984	11,846,891
Net income	$ 13,858,196	$ 8,916,181
8% preferred divs.	893,621	1,141,220
7% preferred divs.	3,409,452	3,159,363
Common dividends		4,494,785
Surplus	$ 9,555,123	$ 120,813
Other income		†2,100,000
Previous surplus	6,003,877	12,188,803
Total surplus	$ 15,559,000	$ 14,409,616
Preferred divs. pay		1,074,604
Appropriations	6,458,834	170.445
Previous depreciation		2,100,000
‡Discount		5,060,690
P. and L. surplus	$ 9,100,166	$ 6,003,877

†Income earned but not taken in prior years.
‡Balance of discount on, and expenses of bond issues, applicable to subsequent years.

Production of the various products of the corporation was generally in excess of one year before in 1925. The comparative items for the two years follows:

	1925 (Gross tons)	1924 (Gross tons)
Ore	5,580,362	4,753,889
Limestone	1,726,975	1,361,345
Coal	6,331,246	5,586,200
Coke	4,446,472	3,446,728
Pig iron, etc.	4,027,184	3,435,011
Ingots and castings	5,344,625	4,419,037
Rolled products for sale	3,829,032	3,266,245

"Between Jan. 1, 1925 and March 1, 1926, the funded debt of your corporation outstanding has been reduced by the payment of over $19,000,000 of bonds" the report says. "Your corporation has no important funded obligations maturing before 1936.

"The cash expenditures for additions and improvements to properties during the year amounted to $34,466,000. The estimated cost of completing construction authorized and in progress, as of Dec. 31, 1925, is $13,200,000.

"The construction program referred to in the report of one year ago is now virtually completed. The last important units consisting of wire, rod and nail department, the new blooming mill and the additional open-hearth furnaces at the Marysville plant will go into operation in April or May of this year.

"The completion of this program involving the expenditure of $80,000,000 since the acquisition of the Lackawanna, Cambria and Midvale properties, has greatly strengthened the position of the corporation and added to its earning power by effecting economies and by increasing its finishing capacities.

"The shipbuilding plants during 1925 were occupied principally on ship repair work, except for uncompleted government work at the Fore River plant and railroad passenger car building at the Harlan plant. Notwithstanding curtailed activities the operations of the shipbuilding subsidiary resulted in a profit."

Colorado Fuel & Iron Co. Earnings Increase

Net income of the Colorado Fuel & Iron Co., Denver, after all deductions in 1925 was $1,752,427, against $520,285 in 1924. In his report to the stockholders, President J. F. Welborn said the company expended $2,442,732 in 1925 for additions in improving the plant, enlarging the merchant mill and other developments. These additional improvements and the balance on improvements commenced in 1924 calling for expenditures for approximately $4,500,000. It is planned to meet these without increasing capital liabilities. The reduction in manufactured costs that would result from these improvements and the additional products to be obtained will strengthen the company's position and should bring an increase in earnings, according to President Welborn. He states that the present operations at the steel plant are on a satisfactory basis with open-hearth furnaces and most of the mills are working to capacity but unfilled orders are not as large as they were last year.

Earnings of Midvale Co. Doubled Past Year

Net income of $394,156 for 1925 after all expenses and reserves for depreciation and other accounts is reported by the Midvale Co. This compares with the net income $191,861 in 1924. Total sales of the company amounted to $6,163,752. The company has current assets of $4,979,433, and current liabilities of $153,375. In his report to stockholders President A. C. Dinkey says that "although the price of forging to which your plant is largely devoted has been low and the market keenly competitive," the business for the year showed a somewhat higher per cent of profit for the two preceding years due largely to improved operating methods.

Melt High Chromium Alloys In Acid Furnace

By R. S. Kerns

HEAT resisting alloys have been used for some time. The demand grew because the manufacturer specified castings to give better results and longer life in the transmission of high temperature, corrosive liquids and gases, in the parts of annealing furnaces exposed to stresses under high heats, and in fact, any place where the plain carbon steel casting has to be replaced frequently because of its inability to resist high temperatures, that is up to 2200 degrees Fahr., and still be serviceable.

Various alloys have appeared on the market in the past four or five years under trade names, and each one has shown that it is able to withstand the abuse to which it is subjected. The writer does not wish to dwell on the merits of the different heat resisting alloys, and therefore will enumerate some of the uses to which this alloy is adapted.

In the oil refinery, alloy steel has been used successfully in the transmission of hot liquids and gases. The tubes used for this purpose in many cases are subjected to the action of the flames as well as to the action of the liquids. The headers on stills must be able to withstand this punishment and yet retain their shape as well as resist oxidation.

Chromium Important Element

In the annealing furnaces the alloys are used as disks in continuous annealing furnaces as well as in the bottom, sides, and roof. H and I beams of these alloys either cast or rolled, are used where articles are placed in the furnace on racks. Cyanide pots and annealing boxes have shown remarkable life when made from these heat resisting alloys. Disk valves of this material are being used in the gas lines of open-hearths successfully. Where carbon steel has proved ineffective in contact with high heat, these alloys slowly are replacing it. The advantages claimed for the alloys are the ability to resist oxidation and chemical reaction, and possess a minimum deflection when loaded under high heat, such as for beams and supports.

The majority of heat resisting alloys contain a large percentage of chromium, some of them going as high as 30 per cent chromium, others from 15 per cent up. Some of the alloys also contain nickel in varying amounts from 3.50 per cent to 35 per cent. However, one company producing a high chromium heat resisting alloy has found by extensive investigations that the presence of nickel is harmful when the casting is exposed to open flames especially where much sulphur is present in the fuel, the claim being that the sulphur in the flame combines with the nickel forming a nickel sulphide. When the alloy is exposed to sulphur and the nickel sulphide formed, the casting has a tendency to swell or assume a rough warty appearance. Continued contact with the open flame destroys the properties of the nickel bearing heat resisting alloys. In the nickel-sulphur equilibrium diagram we see that a small amount of sulphur will lower the melting point of nickel a hundred degrees or more. However, in the electric annealing furnace nickel does not seem to harm the alloy but instead imparts additional strength to it, only when used in amounts over 3.50 per cent. Below this amount there does not seem to be any appreciable difference in the physical properties of the alloys. This fact was discovered accidentally by the writer when melting and producing one of the high chromium heat resisting alloys recently in an acid electric furnace.

Chromium has been used for some time in the production of stainless steels. It has been found that the non-corrosive properties are due to the stabilizing of the passive state of the steel by the chromium. However, this is not accomplished unless the chromium is at least 15 per cent. Another theory advanced as to the properties of high chromium steel is that, up to a certain composition, a solid solution behaves toward reagents as does its noblest constituent.

Gives Basis For Alloy

We now have the basis for working up a heat resisting alloy. First, an alloy added to the steel which will impart to the casting or shape the ability to resist the corrosive action of the flames; this has been shown to be chromium in sufficient quantities. Second, the final product must be strong and able to hold its shape under long exposure to high heats, that is from 2000 to 2200 degrees Fahr. With the carbon around 0.40 to 0.60 per cent and the correct percentage of chromium, the product has this second property and will not warp as do plain carbon steel castings. It has been proved that an increase of chromium in carbon steel raises the Ar, and the actinium, points of hypoeutectoid steels. In other words, the temperature range of grain growth has been raised and this imparts to the steel the property sought.

The composition of the particular heat resisting alloy which the writer wishes to discuss is as follows:

Chromium—25 to 30 per cent
Carbon—0.40 to 0.60
Silicon—not over .50
Manganese—0.60 to 0.80
Sulphur—not over 0.05
Phosphorus—not over 0.05

The writer had produced this alloy successfully in a basic lined electric furnace with a rated capacity of 1000 pounds and was called upon several years later to see what results could

Heat Resisting Steel Made on Acid Lining

THE acid electric furnace generally melts faster than the basic, but is handicapped in that reducing conditions cannot be obtained. Certain alloys are oxidized easily and for this reason the melting has been carried out in basic electric furnaces.

In this article R. S. Kerns gives some of the uses of high chromium alloy steel and relates his experience in melting this alloy in the acid electric furnace. Although high losses of chromium were expected, the reverse was true. The procedure in melting is given and some interesting observations noted. Mr. Kerns is now connected with the department of metallurgy, Pennsylvania state college, State College, Pa.

be obtained in an acid-lined electric furnace of larger capacity. This furnace was a 3000-pound furnace built by the Pittsburgh Electric Furnace Corp., Pittsburgh.

We expected to lose considerable chromium in the slag, because we were to use an acid-lined furnace and because of general working conditions. The representative of the company who was selling the alloy advised the writer to provide for at least an 8 per cent loss of chromium. However, after he had observed the care taken in melting a heat of regular carbon steel he decided to allow for a 4 per cent loss of chromium. The charge was calculated to contain 32 per cent chromium as charged, to yield a 28 per cent chromium product. As a 1 per cent carbon ferrochromium was used it was necessary to use only low carbon scrap. The scrap accordingly was selected from a pile of 0.12 to 0.15 per cent carbon stock and a charge of 3000 pounds made up as follows:

Ferrochromium (1 per cent carbon)	1371 pounds
0.12-0.15 carbon scrap	1662 pounds
Total	3033 pounds

As over one third of the charge was ferrochromium, the problem of charging it was next brought up. The method decided on was to charge some scrap on the bottom of the furnace, then charge some ferrochromium then more scrap and more alloy, keeping the alloy in the center of the furnace so as to protect it from the air as much as possible, and finally the remainder of the scrap. This method had worked satisfactorily in the small furnace but with the larger furnace we ran into difficulties. The scrap melted and allowed the ferrochromium to sink to the bottom of the furnace forming a skull. It took some time before the bottom was finally cleaned off.

Use Chromium Bearing Slag

We were fortunate to receive about 50 pounds of slag from some former heats of this alloy which had been produced in another foundry. This slag was saturated with chromium and the idea was to form a slag at once containing a high percentage of chromium in order to hold more in the slag. In other words it seemed that the slag would absorb a certain percentage of chromium and if a slag could be formed already holding a large percentage of the alloy, the loss in the heat would not be so great. About 30 pounds of the slag was charged in the electric furnace with the scrap and ferrochromium in this heat.

The power was thrown on and all the openings luted up with clay. It was necessary to keep as much oxygen out of the furnace as was posible and attempt to maintain as nearly a neutral atmosphere as we could. Lime was used freely on the slag but not enough to harm the acid lining. Power was used for about 40 minutes at the rate of 1800 amperes and 135 volts and then reduced to 80 volts and 2400 amperes. After about 90 minutes the door was opened to observe conditions in the furnace and to take a temperature test. It was then discovered that the bottom had a heavy skull and no heat test was taken. Thirty minutes later the bottom again was tried and finally after about 2½ hours from starting the heat the bottom was clean.

Judging the Temperature

It is important that the pouring temperature of this alloy be right, as it must not be poured too cold or too hot. Of course, the pouring temperature is determined also by the work to be poured and methods of handling the metal.

Two methods of getting the temperature of the heat in the furnace are as follows: First, by the skin test as used for plain carbon steels, the difference being that one-half the time taken for plain steel to skin over is considered a good pouring temperature for the alloy. In other words if it is the practice to hold ordinary steel 60 seconds, for a freeze-over then 30 seconds will be long enough for the alloy and will pour with the same fluidity as the 60 second steel. The second method is by observing the fracture of a test piece. When the alloy is cold the fracture resembles somewhat that of tool steel and has an extremely fine grain. As the temperature is increased the grains grow until at a 30-second skim test they are large, perfectly smooth and bright, and arranged in a regular formation following the contour of the test piece. Grains as long as ¼ to ⅜-inch and as wide as 1/16 to ⅛-inch were secured.

One of the problems of the melter is to raise the alloy to a temperature high enough to give the required fluidity and yet cold enough to keep the grains as small as possible. Large grains, which fracture along well defined cleavage planes, affect the ultimate strength of the castings.

Steel Appears Dull

Some of the peculiarities of this alloy are shown in a discussion of this first heat. When we looked in the furnace the heat was lying perfectly quiet. In fact it had a dull, dead appearance, as did the heat test when removed from the furnace. No silicon or killer was necessary, this was due to the large percentage of silicon found in ferrochromium. It analyzed about 1 per cent of this element in the ferroalloy we were using. Twenty-five pounds of ferromanganese was added and after three minutes the writer called for the ladle. A vigorous objection was made by the foundry superintendent who said it was too cold to run out of the furnace. Surprises were in store for him later on. The heat was tapped into a 4000 pound ladle and set on a stand where it was distributed to the molds by means of a 500 pound bull ladle. The heat was poured with a sluggish, dead appearance but showed no tendency to freeze. After several of the castings were poured, one of the molds broke out during the pouring. A shovel of sand was held against the stream but the metal flowed as fast as before, a shovel of wet sand was then tried with no better results. Clay would not freeze the molten metal. The only method the writer has found to stop a break out is to hold a stick of aluminum in the stream. This will freeze the metal, provided the stream is not too large. To all appearances the heat was so dead and sluggish that it seemed impossible to pour die blocks but was so hot it broke through and wet sand or clay would not freeze it. After the heat was poured there was no trace of a skull in the large ladle or in the bull ladle.

The analysis of the alloy showed the chromium content to be 31.6 per cent. Instead of losing at least 4 per cent chromium, the loss was only 0.38 per cent. Accordingly, in the following heats we figured on 30 per cent chromium in the charge to produce 28 per cent in the castings, but the results obtained were so good that we finally were able to base our charges on 29 per cent chromium going in and getting 27 to 28 per cent in the product.

Charging Method Changed

Observations of this first heat showed that a different method of charging the ferrochromium was essential to stop the skull in the furnace. This was done by charging about 30 per cent of the alloy with the whole charge of steel scrap and letting this melt down under as limey a slag as was possible to carry in the acid furnace. The remainder of the alloy was added a shovel or two at a time at regular intervals of three or four minutes. This resulted in a shorter

time for the heats, and yet the final analysis was within the limits. When the final shovelful was in, the furnace was sealed up as before. Sufficient time was given to insure that the metal was melted and at about the temperature desired. Following this various heat tests were also taken.

Nickel added to the heat, altered the fracture somewhat. The fracture was then fine grained even when the heat was at the correct pouring temperature. It was also possible to bend the test piece, which was 1½ x ¾ x 5 inches long, from 30 to 60 degrees before rupture. The steel containing chromium alone was brittle and this prompted the writer to add nickel. At least 3.50 per cent nickel was necessary to change the structure of the alloy.

Concrete Institute Adopts New Code

MEMBERS of the Concrete Reinforcing Steel institute at their second annual meeting at Atlantic City, N. J., March 10 and 11, adopted a uniform sales contract and standard practice for bundling and tagging. In so doing they accepted the recommendations of the standard practice committee, of which O. W. Irwin, manager reinforcing bar division, Truscon Steel Co., Youngstown, O., is chairman.

Progress reports were submitted by the committees on membership, credit information, grade of steel and standard sizes, and engineering, selling and cartage costs. Edward L. Soule, Edward L. Soule Co., San Francisco, submitted by mail a report on the formation of the California Reinforcing Steel institute having a charter identical with that of the Concrete institute.

Not to establish a precedent but to facilitate the direction of the institute in its second year, all officers were re-elected. These include W. H. Pouch, Concrete Steel Co., New York, as president; George E. Routh Jr., Kalman Steel Co., Chicago, as vice president; C. Louis Meyer, Concrete Engineering Co., Omaha, Nebr., as treasurer, and M. A. Beeman, Chicago, as secretary.

Louis Aronstam, Southern G-F Co., Atlanta, was made a director to fill the unexpired term of W. P. Davis, who has resigned from the Knoxville Iron Co., Knoxville, Tenn. In place of Edward L. Ryerson Jr., Chicago, and James Cowin, Minneapolis, retiring directors, the institute selected Mr. Soule, giving the Pacific Coast representation, and William F. Zabriskie, Gabriel Steel Co., Detroit. The semi-annual meeting of the institute is to be held next September at French Lick, Ind.

Mr. Pouch, in his president's address, stressed the co-operation the institute has made possible, reported that 95 per cent of the reinforcing bar tonnage of the country now is represented in the organization, and referred to the advantages presented by central estimating bureaus in some of the larger cities. Emmett H. Naylor, secretary Writing Paper Manufacturers' association, talked on "Business Ethics". The value of trade associations was emphasized by W. Chattin Wetherill, director of metals utilization of the department of commerce.

In a paper on reinforced concrete roads W. S. Edge, Concrete Steel Co., New York, said "it is perfectly possible to build a continuous reinforced concrete pavement without any joints whatsoever and to control the cracking so that it will not be a matter requiring maintenance. To do this will require a fairly heavy and stiff concrete section and a considerable amount of reinforcement, but it may possibly be the ultimate type of construction for heavy traffic movement."

Speaking on "Prospects for 1926", Thomas S. Holden, F. W. Dodge Corp., New York, said in part:

"On the whole it does not seem likely that the reaction which seems to be on the way will cause 1926 building volume to fall considerably below that of 1925. At the beginning of this year I estimated 1926 building construction volume at $5,750,000,000 compared with $6,622,000,000 in 1925. That was a conservative estimate. It did not seem on Jan. 1, nor does it now, impossible for this year's total volume to equal last year's record.

Refractory Producer Is Under New Control

Pittsburgh, March 22.—At a meeting held at Mount Union, Pa., Wednesday, March 17, the United States Refractories Corp., with silica brick plant at Mount Union, Huntington county, Pa., having a daily capacity of 160,000 brick, and a fire clay brick plant at Barrett, Clearfield county, Pa., having a daily capacity of 40,000 brick, was reorganized and control passed into the hands of Thomas N. Kurtz, formerly president and general manager of the Standard Refractories Co., Claysburg, Pa. The arrangement involves in addition to the two previously mentioned manufacturing plants, approximately 10,000 acres of mountain lands and the town site of Kistler, Mount Union. R. P. M. Davis, formerly president of the United States Refractories Corp., who retains a large interest in the new organization, now is chairman of the board. Mr. Kurtz is president and general manager in charge of administration, sales, etc.; C. V. Hackman is first vice president in charge of operations, and John O. Heitsenrether is vice president in charges of sales; Victor L. Wallett is secretary and treasurer. All these are directors, together with Charles A. Searing, Pittsburgh engineer, P. N. Risser, Bradford, Pa., banker, and William H. Sneath, New York City engineer.

Mr. Kurtz commenced his career in the brick business at the age of 15 at Johnstown, Pa., with A. J. Haws & Son. After additional experience at Johnstown, Pittsburgh, Mount Union and Claysburg, Pa., he in 1913 organized the Standard Refractories Co., which was operated under his management until it was sold to the General Refractories Co. three years ago. Since that time he has been making further studies and investigations, and the matter of a merger of various fire clay and silica brick producers up for consideration for many weeks past under his guidance is still held in abeyance, but is understood to be furthered by the reorganization of the United States Refractories Corp.

This latter interest was organized in 1911 by R. P. M. Davis, formerly Pittsburgh manager of the Harbison-Walker Refractories Co., since which time he was its head, and by C. V. Hackman, formerly superintendent at the Mount Union works of the Harbison-Walker company. Some changes in the financial structure of the corporation will be effected. Capital at present is $2,000,000 but the assets appear to be more than that sum.

Eighty-two motor fire extinguishers were manufactured in January compared with 134 in December according to the department of commerce. Fire extinguisher production also included 13,660 soda-acid type, 1207 hand pump type and 23,731 carbon tetrachloride type.

Editorials

Recording 25 Years in Industry

IN THE press of daily routine one has little time or opportunity to view current events in their true perspective. The relative importance of day to day achievements is difficult to determine, due largely to the absence of convenient means of comparison. Values are distorted because newness and proximity unduly enhance the apparent merit of fresh deeds.

But time establishes all accomplishments at their deserved levels. For this reason, IRON TRADE REVIEW presents in this issue a supplement devoted to an analytical review of American industrial progress in the first quarter of the twentieth century, believing that the time is ripe for striking a balance for that period.

The result is highly complimentary to those leaders who have guided the destiny of industry since 1900. The story of the quarter-century is one of marvelous expansion of productive capacity, application of machinery on an unprecedented scale, development of an American genius for industrial organization, unparalleled diffusion of wealth and general enjoyment of unusual comforts of life, and finally creation of a new school of business executives. It deals with experiences at opposite extremes of business conditions. Top speed production at the dizzy heights of wartime excitement is contrasted with the cautious, discouraging journey through postwar deflation. Certainly the period affords an exceptional study of the behavior of American industry at its best and worst.

IRON TRADE REVIEW presents this 48-page supplement to its readers not as a complete survey of the quarter-century, but as a broad view of the most significant events in that stirring period. In doing so, if it has imparted a clearer conception of the important role of steel in lifting American standards of living to their present enviable position, or has furnished inspiration to those who face the industrial problems of the future, the effort expended on it will have been fully justified.

Corporation's Year Reflects Prices

NINETEEN hundred and twenty-five was a distinctly better year in the iron and steel industry in point of production and demand than 1924. There was, however, no correspondingly pronounced improvement in profits of leading companies. The explanation of this curious condition lies in the low level of prices, a fact which is pointed out in the twenty-fourth annual report of the United States Steel Corp. just made public.

In 1925 shipments of all products by the corporation, excluding coal and cement, amounted to 13,388,846 tons. This compared with 11,526,890 tons in 1924, a gain of 16 per cent. Meanwhile, the net profit, after expenses and available for dividends last year, was $90,602,000 against $85,067,000 in 1924, an increase of less than 6 per cent. Chairman E. H. Gary explains that the corporation received on all of its domestic finished steel sales $3.80 per ton less than in 1924. The average reduction from 1924 per ton of finished steel exported was $4.38.

Even more striking is the comparison of earnings with the first full year of the corporation's existence in 1902. Since that year aggregate assets of the corporation have increased by about $1,000,000,000. Its productive capacity has increased by 118 per cent and the number of its employes has gained from 168,000 to 250,000. Yet in this first full year of the corporation's life it was able to earn a sum available for dividends, of $90,306,000 or within $300,000 of the amount earned in 1925.

Stability Is Most Desirable

PRODUCERS of raw materials in some districts have been depreciating the bearish attitude assumed by some purchasers toward current price levels. These producers assert that persistent talk of a weaker market and pressure to force prices down create a disturbance that reacts inevitably upon finished products and merely re-establishes the relationship between material and product on a lower level.

Invariably the purchasing agent is gaged by his ability to buy cheaply and retain sources of supply, and he is not permitted to forget this. He initiates a cycle which the sales department of his organization concludes. It is difficult for producers at times to remember that while the purchasing agent largely meshes with the cycle of the producer, he still moves entirely within the cycle of his own organization.

The average producer stresses stability rather than price. He contends, for example, that no sooner is the price of pig iron battered down than the buyer of castings extorts equally as great a reduction in the price of castings. That is fre-

quently true. It is easier, however, for the producer than for the purchaser to talk stability, because there are fewer of him.

Buyers today are naturally pressing the advantages that accrue to them in a buyers' market. Business under presentday competitive conditions cannot be other than a hard fought contest and rarely ends in a draw. In the long run producers cannot artificially hold up a market and buyers cannot unwarrantedly "bear" it. Those institutions, both buyers and sellers, are most happy and enduring which do not take undue advantage of any situation.

Good Inventions Made Useless

BEING in too big a hurry to negotiate licensing agreements during the war the government purchased outright about thirty thousand patents. It still has them and now they cannot be either utilized, sold or given away. They are bottled up—useless, and some of them cover valuable inventions needed by American industry. Whenever the government meddles in business, trouble ensues accompanied by waste, inefficiency and loss.

To reform the patent laws would be a tremendous task. It has been talked about for 25 years, but nothing has been done. The difficulty lies in the fact that any tampering with the law as it stands might easily introduce more complications than would be eradicated. But while a general reform of the patent laws and patent office procedure is still being considered, there should be little difficulty in getting through the necessary legislation to release the many thousand valuable industrial patents which the government now has bottled up in Washington. American industry needs the benefit of these inventions. Take them down off the shelf and put them to work.

Teamwork Grows in Metals

TEAMWORK is of growing significance in the nonferrous metal industries. For a long time the activities of various governmental agencies against competitors getting together in a market way, frightened many producers and manufacturers from participating in organizations for specific trades for any purpose. When the metal industries centered around New York and Connecticut, this did not make so much difference, as the various officials came into frequent contact with exchanged views. In the past quarter of a century the industry has continued to grow in the East but much more rapidly in the Middle West. Points of view and methods, as well as plants, became more scattered. Then about the end of the war the zinc producers organized to study problems collectively and a little later the brass and copper industries. The latest industry to do so is that of brass ingot smelting. More than a score of companies, from corporations with millions of capital to little plants owned by individuals and worth a few thousand dollars, are engaged in this reclamation of scrap and smelting it into ingots. The business has grown into one of hundreds of thousands of tons, but price competition has been destructive and the cost methods loose. Under such conditions, more scientific cost keeping and specialized study of the peculiar problems of this business which heretofore has not been possible should result in material benefit to those directly engaged and to the metal industry as a whole.

What Our Readers Are Thinking

Sell Canada More American Machinery

THE question of representation and allocation of sales territories in Canada is a most important one to the American manufacturer of industrial machinery, especially in view of the fact that Canada has long held its position as the largest market for American machinery. Only in 1921 did Canada relinquish first place to Mexico. Canada again became our best industrial machinery customer in 1922 and has held this position ever since.

It appears probable, from statistics for the 11 months, January to November, 1925, inclusive, that Canada has retained its leading position as a market for American machinery through the past year. The second most important foreign market for United States machinery, the United Kingdom, is also the only important competitor of the United States, outside of Canada herself, for the Canadian machinery trade. The British trade, though small in comparison with that of the United States, has been gradually increasing and emphasizes the importance of intelligent sales methods on the part of American manufacturers.

It is desired to place particular emphasis upon the danger of passive rather than active consideration of Canadian business by American manufacturers. The proximity of the market does not mean that American firms can leave everything to their agents in the Dominion. As a matter of fact, with keen and increasing competition from both Canadian and European machinery manufacturers, the sales of American equipment can be maintained only by especially close co-operation in marketing.

A representative should be stationed in Canada by the American manufacturer, if the volume of business warrants the expense, acting as liaison officer between the factory and the Canadian sales agent. A less expensive step would be the assignment of a factory representative to visit the Dominion annually. Allocation of sales territories in Canada is an individual, not a general problem. —LYNN W. MEEKINS, United States trade commissioner, Ottawa.

The Reader's Page

Vol. LXXVIII, No. 12 IRON TRADE REVIEW March 25, 1926

Quarter Century of Progress Reviewed

IRON TRADE REVIEW'S Quarter-Century Supplement, in this issue, probably is the most elaborate and complete survey of its kind ever published by a business paper. The supplement contains 48 pages, replete with illustrations covering the developments in the iron and steel industry during the past 25 years. Ten special articles, written by members of IRON TRADE REVIEW'S staff, deal with the great events of that period, with progress in making and fabricating iron and steel, and advances in the castings industry and in the development of machinery. The role that manufacturing has played in American life is admirably described, outstanding personalities are recalled, and the growth of business units is reviewed. The chronology of the quarter century gives in condensed form the most important events.

Read the Quarter Century Supplement Pages 753-800

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The Business Trend

Steel Corporation Report Reflects Problems

By JOHN W. HILL, Financial Editor

IN THE twenty-fourth annual report of the United States Steel Corp. may be found an excellent object lesson and cross section of some of the most difficult problems now confronting business. Among these problems those of high production costs, low prices and narrow profit margins are perhaps the most serious.

IT COMES as something of a shock to learn that the net available for dividends in 1925 of $90,602,000 was almost unchanged from the sum of $90,306,000 for dividends in 1902 the first full year of the Corporation's life. Since then aggregate assets have been augmented by about $1,000,000,000 and productive capacity has doubled.

THE situation gives clear evidence of the staggering industrial overhead of today and that prices in the iron and steel industry are out of adjustment with the general price level. In 1925 despite rising outputs and demand the average selling price of finished products shipped by the Corporation dropped $3.80 a ton. This reflects keen producers' competition, and close buying by users.

IRON and steel prices, as measured by IRON TRADE REVIEW'S composite market average, now stands at about 47 per cent over the 1913 level. General wholesale commodity values are 55 per cent over 1913. But it is significant to note that the general wholesale price average is now receding. It stands 3 per cent below its level of one year ago.

ANOTHER problem of the present, as pointed out by Chairman E. H. Gary in the Corporation report is the necessity for constantly increasing reserves for replacement and renewal. Higher prices for labor, equipment, and material for modern replacement requires an investment from two to four times the cost of the old equipment.

THE question as to whether the steel industry is accumulating inventories is answered by the report so far as the Corporation is concerned. In 1925 it shipped 117,000 more tons of finished steel than it produced. This is good and sufficient reason for the Corporation's conservative policy in the matter of husbanding and accumulating reserves.

The Barometer of Business

Industrial Indicators

	Feb., 1926	One month ago	One year ago	1913
Pig iron output (Daily average, tons)	104,337	107,183	114,645	83,900
Blast furnace index 60 per cent = normal	58.5	58.5	63.6	62.8
Unfilled orders (tons)	4,616,000	4,882,739	5,284,771	4,513,000
Ingot output (Daily average, tons)	158,131	158,971	155,977	.....
Dodge Bldg., awards in 27 states (sq. ft.)	41,243,400	54,583,200	28,649,000	31,250,000
Automobile output	375,332	315,892	287,213	.....
Coal output, tons	46,574,000	53,662,000	38,953,000	39,869,000
Business failures; number	1,801	2,296	1,793	1,336
Business failures; liabilities	$34,178,248	$43,661,444	$40,123,017	$22,732,000
Cement production, Bbls.	7,731,000	8,032,000	8,255,000	7,704,000
Cotton consumption, bales	567,244	583,192	550,132	438,218
Car loadings (weekly average)	919,000	886,500	904,800	.....

Foreign Trade

Exports	$353,000,000	$399,000,000	$370,000,000	$194,000,000
Imports	$389,000,000	$414,000,000	$333,000,000	$149,900,000
Gold exports	$3,850,000	$3,086,870	$50,599,000	$5,234,000
Gold imports	$25,415,000	$19,351,202	$3,602,527	$5,900,000

Foreign Exchange

	Normal	March 22, 1926	One month ago	One year ago
Sterling	$4.86	$4.85	$4.86	$4.77
Francs	19.3c	3.51c	3.64c	5.18c
Lira	19.3c	4.03c	4.03c	4.06c
Marks	23.8c	23.8c	23.8c	.....

Financial Indicators

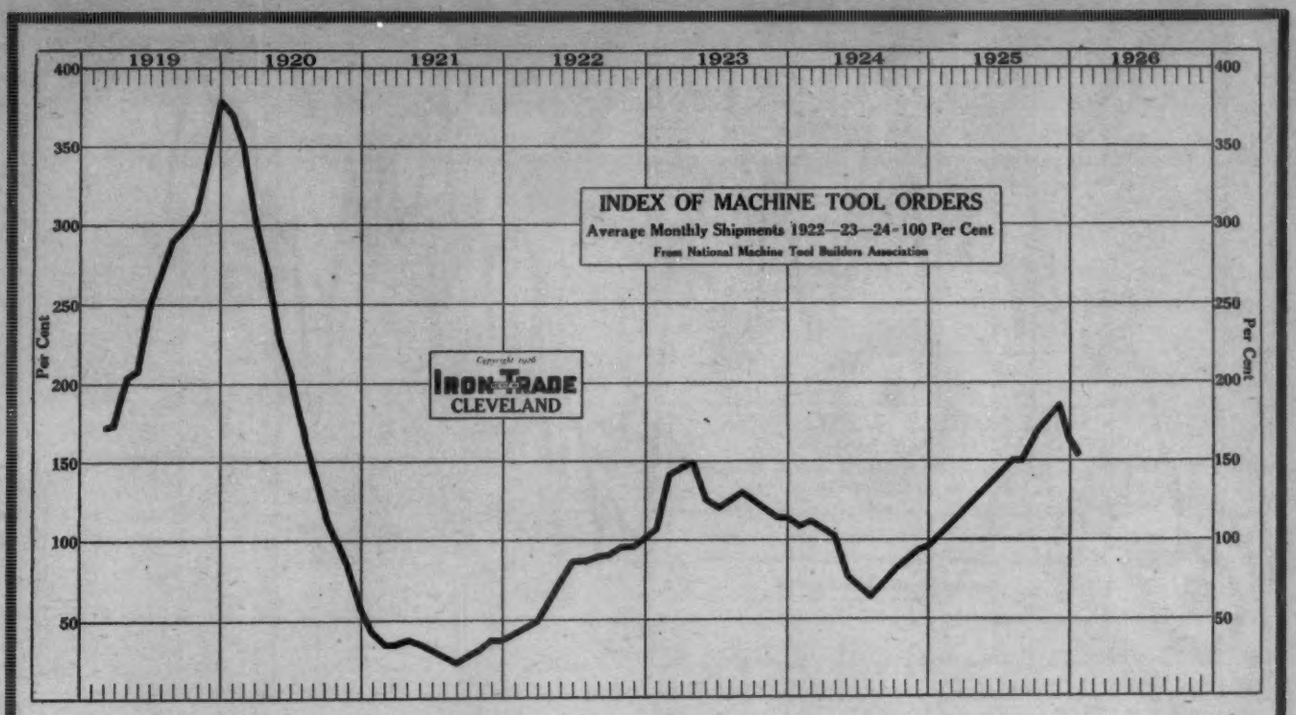
	Feb., 1926	One month ago	One year ago	1913
25 Industrial stocks	**$159.52	$180.07	$135.71	$58.19
25 Rail stocks	**$87.15	$89.75	$78.74	$82.90
40 Bonds	**$86.27	$86.78	$83.08	$93.00
Bank clearings (000 omitted)	$38,799,370	$47,634,000	$37,490,807	$13,895,000
Commercial paper rate (N. Y., per cent)	4.25	4.37	3.75	5.60
*Commercial loans (000 omitted)	$8,335,753	$8,285,175	$8,193,354	.....
Federal reserve ratio, per cent	73.2	74.2	75.6	.....
Railroad earnings	†$65,700,000	$94,646,000	$66,000,000	$59,301,000
Stock sales, N. Y. stock exchange	38,987,885	39,088,336	32,750,000	6,924,000
Bond sales, par value	$239,262,200	$304,474,050	$319,165,300	$41,499,000

*Leading member banks Federal Reserve System.
†Jan., 1925. **March 22, 1926.

Commodity Prices

	March 1, 1926	One month ago	One year ago	1913
U. S. Bureau of Labor Statistics	155	156	160.6	100
Bradstreet's index	144.9	148.5	149.7	100
Economist's (British)	152.3	153	175.6	100
Wheat, cash (bushel)	$1.75	$1.78	$1.70	92c
Corn, cash (bushel)	77c	78c	$1.16	51c
Petroleum, crude (Bbl.)	$3.65	$3.65	$3.75	$2.50

The Business Trend

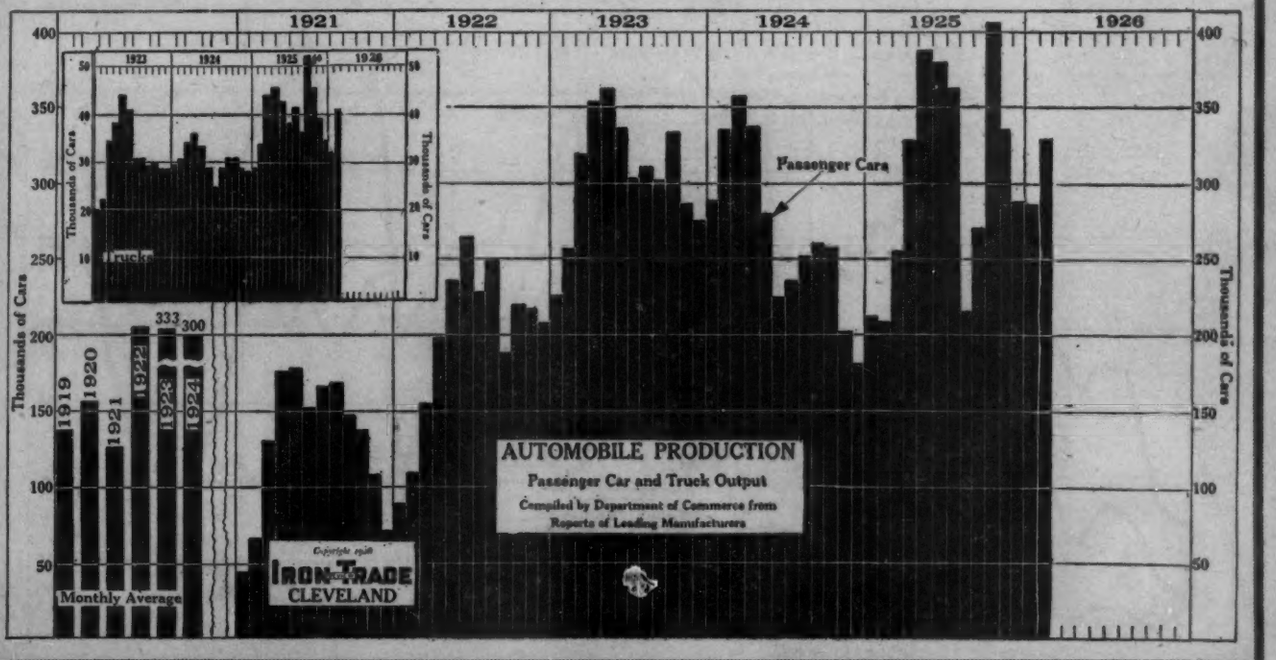


Machine Tool Orders

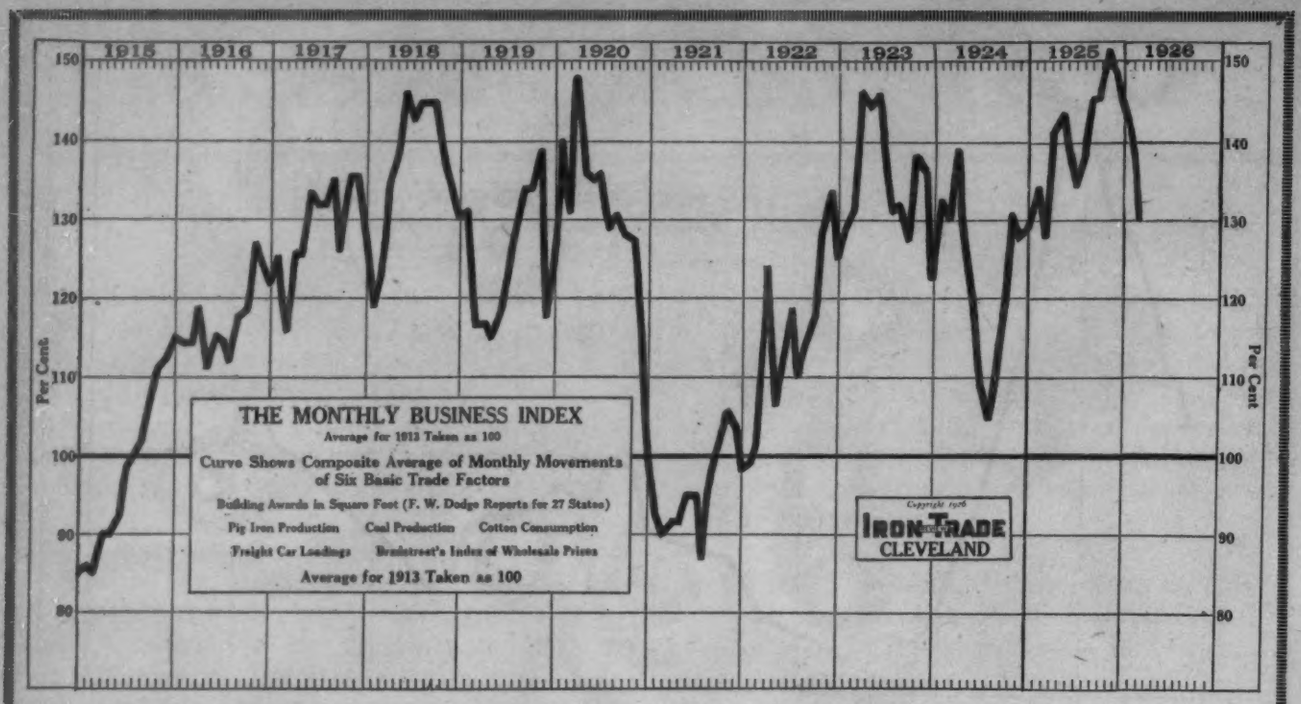
WITH this issue there is presented a chart showing the barometer of machine tool orders as evolved by E. F. Du Brul, general manager of the National Machine Tool Builders association. In the index the three months moving average figure is centered on an arithmetic scale. The center month of the December-January-February period is January and a decline is registered. From current showing it is concluded that the peak of demand for machine tools has passed in the present business cycle.

Automobile Output

PRODUCTION of automobiles in February showed an important increase over both the previous month and the corresponding month one year ago. As reported by the department of commerce, the output of cars was 375,000 in February. This was an increase of 19 per cent compared with January and one of 30 per cent compared February. Output of passenger cars was 32 per cent above one year ago while the production of trucks was 18 per cent above one year ago. Production has been pushed ahead in anticipation of a big demand.



The Business Trend

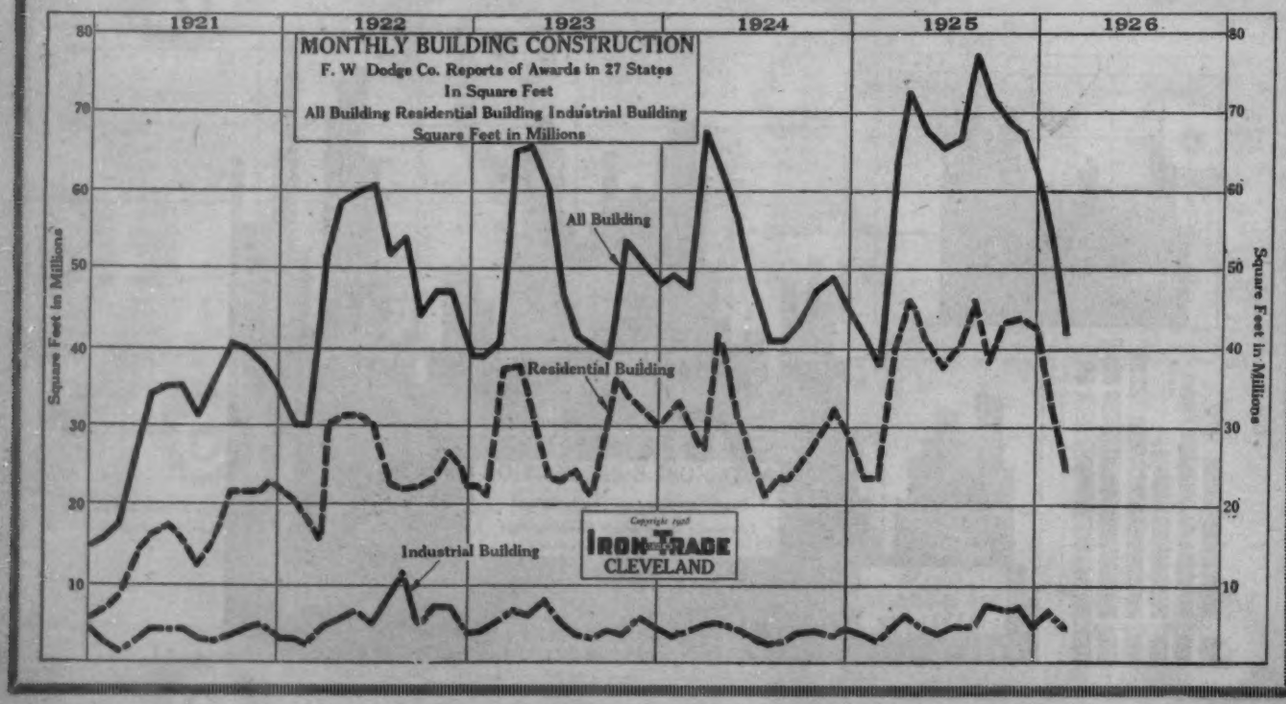


Business Index

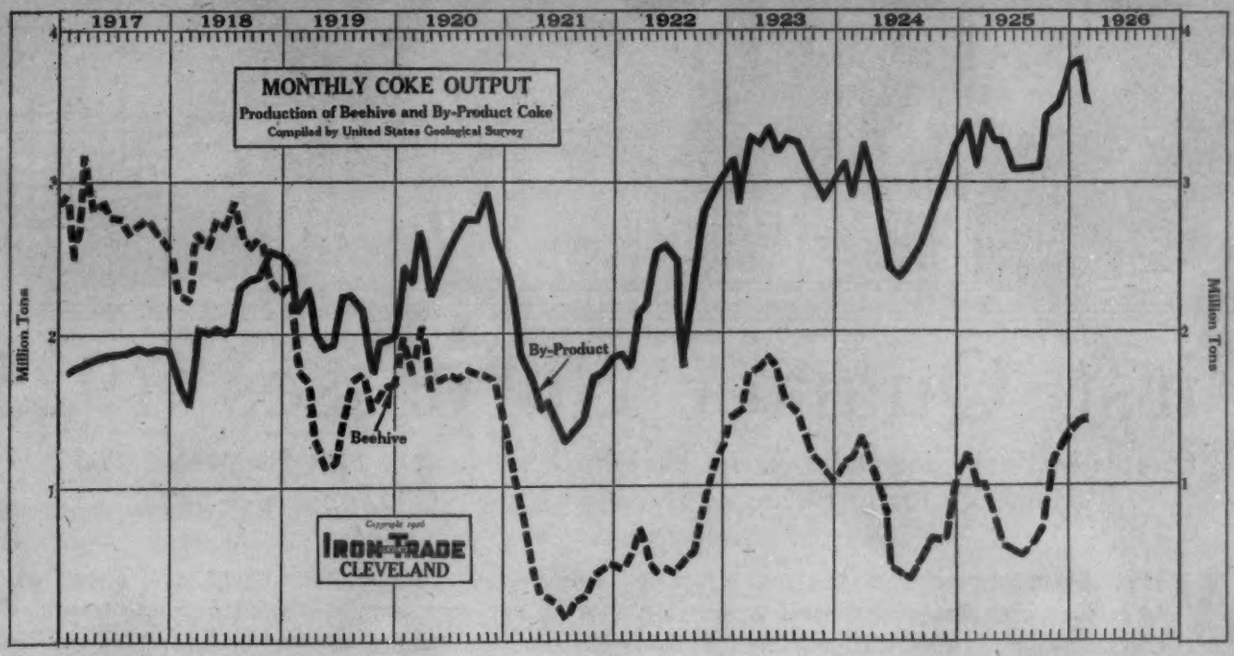
FEBRUARY is a month notoriously dull for business and the usual seasonal relaxation is reflected in the Monthly Business Index. The number stands at 130 for the month compared with 141 for January. The level of activities is higher than it was one year before when the index was 127. Last month there were declines for pig iron production compared with the preceding month, for wholesale prices, for coal output, for building contract awards and for cotton consumption. Freight traffic, however, increased.

Building Construction

BUILDING construction in the United States has been holding up well since the first of the year when adverse weather conditions are allowed for. During February there was a seasonal decline from January but a strong gain over February, 1925. The total awards for the month amounted to 41,843,000 square feet compared with 38,649,000 square feet in February one year ago. Industrial awards in February were 3,722,000 square feet, a gain of 30 per cent over the total of 2,488,000 square feet in February, 1925.



The Business Trend

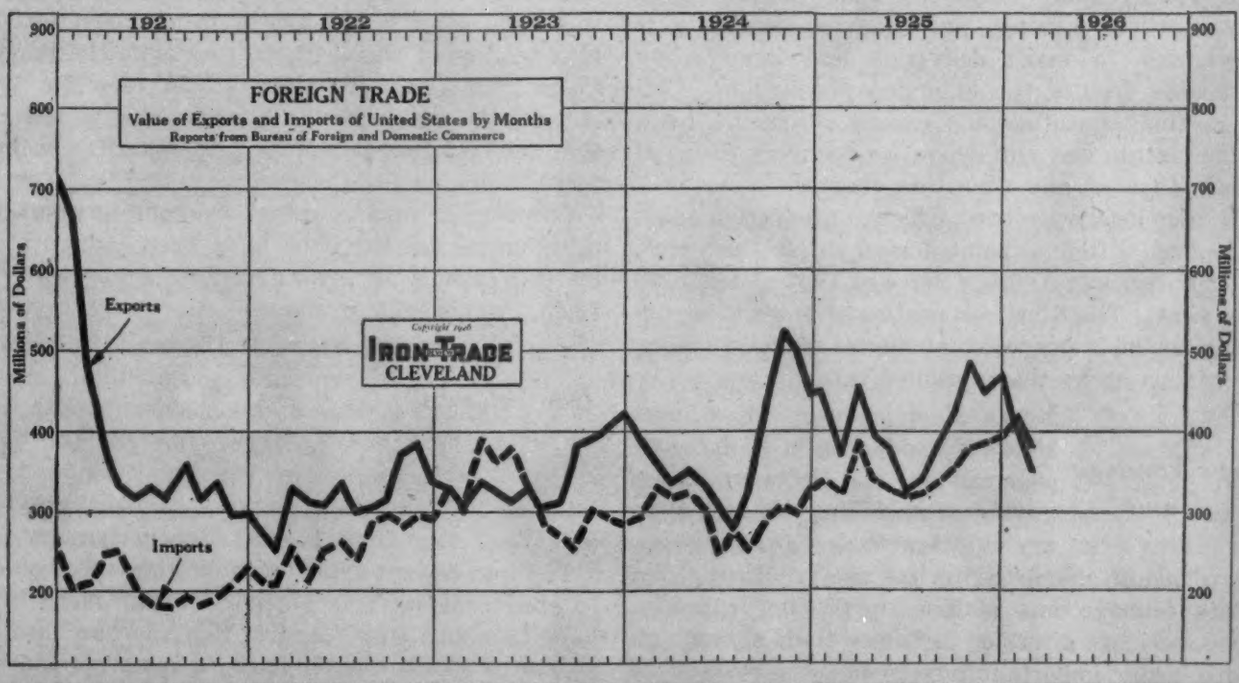


Coke Output

PRODUCTION of by-product coke in February showed a decline from January because of the shorter month. The daily rate of output, however, increased nearly 2 per cent. The production for the month was 3,500,000 net tons, a decline of 8 per cent from that for January. The daily rate, however, increased to 125,006 tons. Coke plants in February operated at 94 per cent of capacity. Total production of beehive coke in February was estimated at 1,402,000 net tons, showing a gain of 1.5 per cent for the month.

Foreign Trade

IN FEBRUARY total imports of merchandise amounted to $389,000,000 against exports of $353,000,000. The excess of imports over exports was $36,000,000 compared with an excess of imports of $14,000,000 in January and with an excess of exports over imports of $37,000,000 in February, 1925. Both exports and imports showed gains over one year ago. Larger imports reflect heavier receipts of raw materials from abroad as well as more aggressive selling by foreign producers of all products.



First Quarter Surpasses 1925

Exceeds in Production and Demand High-Pitched Period of Last Year—Remarkable Volume of Current Buying Is Maintained and Still Is Growing in Some Quarters—Deliveries Are More Retarded

WITH the first quarter of the year drawing to a close, comparisons of steel production, shipments and apparent volume of consumption against the corresponding months of 1925, all are in favor of the present period. The fact that the first three months of 1925 showed the greatest production for any opening quarter on record, lays further emphasis upon the fundamental vigor of the present situation. One year ago at this date, demand began to show the first signs of faltering and production to taper off after 60 to 90 days of high-speed activity. At present, no indications that a similar turn of affairs is developing or is in early prospect, can be detected. On the contrary, some elements of demand appear still to be expanding and production, though near its maximum limit, still is edging slightly higher.

The almost day-to-day method of buying being pursued by many consumers added to the heavy specifications against first quarter contracts is beginning to make deliveries less immediately available despite the extended production. Chicago finds specifications exceed shipments by a wide margin and mill deliveries are more deferred there than at any time this quarter.

Under heavy pressure, Chicago production again has been lifted a point higher to 95 per cent. Pittsburgh and Youngstown are kept at 80 to 90 per cent. The Steel corporation this week is running at 96.5 per cent of ingot capacity which continues above the scheduled rate.

New Tonnage Gains

March steel business, all around, shows a good margin of increase over January and February. Sheet buying after falling off in February appears to be swinging upward again and firmer prices are resulting. Tin plate tonnage has matched producing capacity. The steel bar situation is better than a year ago with many important buyers not yet covered to any considerable degree. Strip steel shows gains of 20 per cent over last month. Plate business is in steadier volume and recent efforts of the mills to stabilize the market at 1.90c, Pittsburgh seem to be proving successful.

Ore Prices Unchanged

Reaffirmation of Lake Superior iron ore prices on the basis of last year has occasioned little surprise in view of competitive conditions now prevailing in that field. While there had been some talk of a possible small advance, when a sizable inquiry appeared for definite negotiations, one large producer quoted the former schedule and took the business, about 200,000 tons. Open market sales of ore to date have been few but about 1,000,000 tons is expected to be closed within 10 days including the 200,000 tons for the Ford Motor Co.

Cast iron pipe is very active. Awards made this week total 25,000 tons with well over 50,000 tons pending of which 29,000 tons is on the Pacific Coast. Of contracts placed, 7850 tons for Los Angeles is the largest. French pipe is low on 6000 tons for Holyoke, Mass. An American maker took 5300 tons for Colombia.

Covering of furnace coke for second quarter appears more definitely to have been inaugurated by the closing of several contracts at $3.10 to $3.25, Connellsville ovens.

Iron Imports Large

Imports of 59,122 tons of pig iron, an unusually large total, made February the heaviest month for the receipt of foreign iron and steel since March 1923, with a total of 100,213 tons. Exports in February fell to 157,187 tons from 174,585 tons in January.

Pig iron buyers persist in following the fashion of steel consumers in placing tonnage more in a hand-to-mouth way. Apart from the purchase of 25,000 to 30,000 tons of basic in eastern Pennsyl-

vania with as much more under negotiation, providing for second quarter needs on any considerable scale still is absent. Melt is large and various users are finding it more difficult to maintain themselves by present buying policies.

Further slashing of prices by reason of a price war between domestic producers has brought down ferromanganese $5 further to $90, seaboard. Since the present movement was precipitated, 15,000 tons has been sold.

IRON TRADE REVIEW composite of fourteen leading iron and steel products was lifted slightly this week to $38.93. Last week it was $38.89 and three months ago $39.10.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	March 24, 1926	Feb. 1926	Dec. 1925	Mar. 1925
PIG IRON				
Bessemer, valley, del., Pittsburgh	$22.76	22.76	22.76	23.86
Basic, valley	20.00	20.00	20.00	21.35
Basic eastern del., eastern Pa.	22.50	22.50	23.00	23.75
*No. 2 foundry, del., Pittsburgh	22.26	22.26	22.26	22.86
No. 2 foundry, Chicago	23.00	23.00	23.00	24.00
*Southern, No. 2, Birmingham	22.00	22.00	21.60	21.00
*Southern Ohio, No. 2 Ironton	21.00	20.60	21.10	21.60
**No. 2X, Virginia furnace	23.00	23.25	23.30	24.00
**No. 2X, eastern del. Phila	23.26	24.01	24.26	24.51
Malleable, valley	20.50	20.50	20.50	21.25
Malleable, Chicago	23.00	23.00	23.00	24.00
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del., Pittsburgh	21.76	21.76	21.76	22.36
Ferromanganese, del., Pittsburgh	94.79	119.79	119.79	119.79
*.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	3.10	7.45	4.00	3.35
Connellsville, foundry, ovens	4.50	6.50	5.10	3.85
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	36.00	36.00	36.60	38.50
Sheet bars, open-hearth, Pittsburgh	36.00	36.00	36.60	38.50
Billets, open-hearth, Pittsburgh	35.00	35.00	35.20	37.75
Wire rods, Pittsburgh	45.00	45.00	45.40	48.00
FINISHED MATERIAL				
Steel bars Pittsburgh	2.00	2.00	2.00	2.10
Steel bars, Chicago	2.10	2.10	2.10	2.20
Steel bars, Philadelphia	2.32	2.32	2.32	2.42
Iron bars, Philadelphia	2.22	2.22	2.22	2.28
Iron bars, Chicago, mill	2.00	2.00	2.00	2.10
Beams, Pittsburgh	1.90	1.90	1.95	2.10
Beams, Philadelphia	2.22	2.17	2.17	2.32
Beams, Chicago	2.10	2.10	2.10	2.30
Tank plates, Pittsburgh	1.90	1.85	1.90	2.05
Tank plates, Philadelphia	2.17	2.12	2.07	2.37
Tank plates, Chicago	2.10	2.10	2.10	2.30
Sheets, black, No. 28, Pittsburgh	3.25	3.35	3.35	3.45
Sheets, blue anl., No. 10, Pittsburgh	2.50	2.50	2.50	2.65
Sheets, galvanized, No. 28, Pittsburgh	4.60	4.60	4.60	4.70
Sheets, black, No. 28, Chicago	3.50	3.50	3.50	3.75
Sheets, blue anl. No. 10, Chicago	2.65	2.65	2.65	2.85
Sheets, galvanized, No. 28, Chicago	4.75	4.75	4.75	4.90
Wire nails, Pittsburgh	2.65	2.65	2.65	2.85
Wire nails, Chicago	2.70	2.70	2.70	3.00
Tin plate per base box, Pittsburgh	5.50	5.50	5.50	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	17.25	17.60	19.00	18.25
Heavy melting steel, eastern Pa.	16.50	16.35	17.65	16.25
Heavy melting steel, Chicago	14.25	13.75	15.50	16.70
No. 1 wrought, eastern Pa.	18.00	18.00	18.75	19.50
No. 1 wrought, Chicago	14.50	14.40	15.40	16.65
Rails for rolling, Chicago	16.50	16.30	18.55	18.15

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (March 24, 1926)	**$38.93**
Last week (March 17, 1926)	**38.89**
One month ago (February, 1926)	**38.95**
Three months ago (December, 1925)	**39.14**
One year ago (March, 1925)	**40.70**
Ten years ago (March, 1916)	**37.18**
Thirteen years ago (March, 1913)	**27.93**

Late News Flashes

Corporation Rate 96.5 Per Cent

New York, March 23.—The works of the Steel corporation this week were operating on an average of 96.5 per cent of ingot capacity. This continues several points above the scheduled rate.

February By-Product Coke Output Up

Washington, March 23.—By-product coke plants in February operated about 94 per cent of capacity and established a daily rate of 125,006 tons, a gain of 1.9 per cent over January, according to the compilation of the bureau of mines. Total production amounted to 3,500,000 net tons.

Valley Operations Steady

Youngstown, O., March 23.—District steel operations continue unchanged. Sheet producers have 90 per cent of hot mill capacity engaged. Steelmakers have 53 open hearths active or 78 per cent of district capacity. Bar and strip mills are working 90 per cent. Full working schedules are in effect at tin mills.

Take Cast Pipe Bids

Chicago, March 23.—On 1000 tons of cast iron pipe for Akron, O., the United States Cast Iron Pipe & Foundry Co. is low bidder at $41.60, base, Birmingham. James B. Clow & Sons is low on 1000 tons for Barberton, O. at $41.75, base, Birmingham. The range of sizes on both jobs is 4 to 16-inch. The United States company also is low on 775 tons for Springfield, Ill.

Chicago Reaches 95 Per Cent

Chicago, March 23.—Fully 95 per cent of the ingot capacity of this district is engaged, and makers of heavy finished steel believe March tonnage will set a new high record. Twenty-nine out of 35 steel works stacks are active, the Illinois Steel Co. having all but three of its 23 stacks at Gary and South Chicago in blast. Seven of 10 merchant stacks are active.

New Bus Company Starts Output

Detroit, March 23.—American Car & Foundry Motors Co., subsidiary of the American Car & Foundry Co., started on chassis for motor busses in its local plant. Fageol Motors Co., Kent, O., Hall-Scott Motors Co., Berkeley, Calif., Kuhlman Car Co., Cleveland, and J. G. Brill Co., Philadelphia, form the new subsidiary. C. S. Sales is president of the Motors company, Col. E. J. Hall, of Hall-Scott, vice president in charge of engineering work, and Frank E. Fageol vice president in charge of sales. S. M. Curwen of the Brill company is a director of the new company, and W. H. Woodin, president of the Car & Foundry company, is chairman.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Philadelphia	40.30 to 41.30
Chicago	35.00
Forging, Pittsburgh	40.00
Forging, Philadelphia	45.30 to 46.30

SHEET BARS

Pittsburgh	$36.00
Youngstown	36.00

SLABS

Pittsburgh	$35.00
Youngstown	35.00

WIRE RODS

¼-inch and finer

Pittsburgh	$45.00
Cleveland	45.00
Chicago	46.00

Standard extras, $2.50 per ton over ⅜-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	1.85c to 1.90c
Universal skelp, Pittsburgh	1.85c to 1.90c
Sheared skelp, Pittsburgh	1.85c to 1.90c

Structural Shapes

Pittsburgh	1.90c to 2.00c
Philadelphia	2.17c to 2.32c
New York	2.19c to 2.34c
Chicago	2.10c
Cleveland	2.09c to 2.19c
Birmingham	2.05c to 2.15c

Steel Plates

Pittsburgh	1.85c to 1.90c
Philadelphia	2.12c to 2.22c
New York	2.14c to 2.24c
Chicago	2.10c
Cleveland	1.99c to 2.09c
Birmingham	1.95c to 2.05c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c to 2.10c
Pittsburgh, cold finishing	2.15c to 2.25c
Pittsburgh, forging quality	2.15c to 2.25c
Philadelphia, soft steel	2.32c
New York, soft steel	2.34c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.19c
Birmingham, soft steel	2.15c to 2.25c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c to 2.10c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	2.00c
Mill rail steel	1.85c to 1.95c
Philadelphia, common iron	2.22c
New York, common iron	2.24c
Chicago, common iron	2.00c

Hoops, Bands, Strips

Hoops, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh over 6 in.	2.30c
Hot rolled strip steel, Pittsburgh stamping quality	2.30c
Hot rolled strip steel, Chicago	2.50c to 2.60c
Bands, Chicago, under 6 inches	2.60c
Bands, Chicago, 6 in. and over	2.50c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	3.90c
Worcester, Mass., Chicago	4.05c to 4.15c

Cold Finished Steel

Cold finished steel bars, drawn, or rolled Pittsburgh, Chicago carloads	2.50c
Less carload	2.75c
Steel shafting turned and polished Pittsburgh, Chicago	2.60c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steel

Pittsburgh or Chicago

S. A. E. Series—	
2600 (3½ per cent nickel)	4.60c
3100 (Nickel chromium)	3.60c
6100 (Chrome vanadium)	4.40c
6100 (Chrome vanad. spring)	3.85c
9250 (Silico-mang. spring)	3.25c to 3.40c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	23.00 to 25.00
Light rails, 25 to 45 mill g.t.	35.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16-inch and smaller, Pitts.	3.00c to 3.10c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c to 3.00c
Track bolts, Pitts. standard	3.90c to 4.15c
Track bolts, Chicago	3.90c to 4.15c
Tie plates, Pittsburgh	2.35c
Tie plates, Chicago	2.25c

Wire Products

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base

Wire nails	2.65c
Galv'd nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c

Coated nails, 100 pound kegs, subject to card of extras Feb. 1, 1926 over regular wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts. $20.03

Joliet, DeKalb and Waukegan, Ill., and Anderson, Ind., prices $1 per ton over Cleveland-Pittsburgh base on products made there; Chicago $1 higher; Duluth $2 higher and Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 28, Pittsburgh, base	3.25c to 3.35c
No. 28, Philadelphia, delivered	3.67c
No. 28, Gary, Indiana Harbor	3.45c
No. 28, Chicago delivered	3.50c

TIN MILL, BLACK

No. 28, Pittsburgh	3.25c to 3.35c
No. 28, Gary base	3.45c

GALVANIZED

No. 28, Pittsburgh, base	4.60c
No. 28, Philadelphia, delivered	4.92c
No. 28, Gary, Indiana Harbor	4.70c
No. 28, Chicago, delivered	4.75c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.50c
No. 10, Philadelphia, delivered	2.82c
No. 10, Gary, Indiana Harbor	2.60c
No. 10, Chicago, delivered	2.65c

AUTOMOBILE SHEETS

No. 22, Pittsburgh, base	4.40c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.50

Gary, Ind., base 10 cents higher.

Long ternes, base	4.35

*This price is subject to quantity differentials established by individual regulations.

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	18

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	68½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3¼ to 3½-inch	46 off

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, c. l., f.o.b. mills	2.80c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$53.20 to 54.20
Six-inch and over, Chicago	49.20 to 50.20
Four-inch, Birmingham	44.00 to 45.00
Six-inch and over, Birmingham	40.00 to 41.00
Four-inch, New York	56.50 to 57.60
Six-inch and over, New York	51.50 to 52.60

Standard fittings, Birmingham base $110.00, 6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Hot pressed square tapped or blank ....$4.00 off list

Hot pressed hexagon tapped or blank ....$4.40 off list

Cold punched square or hexagon blank ....$4.10 off list

Cold punched square or hexagon tapped or blank ....$4.10 off list

Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger.... ....75, 10 and 5 off

Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller ....80, 10 and 5 off

Cold finished S. A. E. semifinished ⅝-inch and larger....75, 10, 10 and 5 off

Cold finished S. A. E. semifinished 9/16-inch and smaller 80, 10, 10 and 5 off

CARRIAGE BOLTS

(⅜ x 6-inch, smaller and shorter).

Rolled thread ....50, 10 and 10 off

Cut thread (all sizes) ....50 and 10 off

Eagle carriage bolts (Eagle list) ....65 and 10 off

MACHINE BOLTS

(⅜ x 4-inch, hot pressed nuts)

Rolled thread ....60 and 10 off

Cut thread (all sizes) ....50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread ....45, 10 and 5 off

Lag screws ....60, 10 and 10 off

Plow bolts Nos. 3 and 7 heads.... ....50 and 10 off

All other standard heads ....50 and 10 off plus 20 per cent

Tap bolts ....30 off

Bolt ends with hot pressed nuts.... ....50, 10 and 10 off

Bolt ends with cold punched nuts.... ....45, 10 and 5 off

Blank bolts ....50, 10 and 10 off

Rough stud bolts with nuts (250 pieces or more of a size) 40 and 10 off

Stove bolts, 80, 10 and 5 off plus 2½ off in bulk.

Tire bolts ....60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight allowed

	S.A.E. Castellated	U.S.S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled ....80 and 10 off

Upset ....80, 10 and 10 off

SQUARE HEAD SET SCREWS

Milled ....80 and 5 off

Upset ....80, 10 and 5 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.50c to 2.60c
Structural rivets, carloads, Chicago	2.75c

**Rivets, 7/16-inch and smaller, Pittsburgh Cleveland.... ....70 and 10 to 70 and 5 off

**Rivets, 7/16-inch and smaller Chicago ....70 and 10 to 70 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist.	$6.30 to 6.40 off
Wrought c.l., Pitts. dist.	6.25 off
Lock Washers, f.o.b. factory	35 off

Pig Iron

Sales and Inquiries Comparatively Light—Shipments Continue Heavy—Prices a Shade Easier, Foundry Selling Down to $20 Valley

FEW large buyers of pig iron have entered the market for the second quarter, and a hesitant attitude on the part of the majority of consumers is evident. The General Electric Co. is obtaining prices on 5000 tons for various plants, and the Pennsylvania railroad is inquiring for 5000 tons for Altoona, Pa. An eastern steelworks has closed for 20,000 tons of basic iron, and another is negotiating for 30,000 tons. A pipe manufacturer purchased 6000 tons of southern foundry iron. The daily average for Chicago stacks in March are the largest for this quarter, and the total for the quarter may be the heaviest in their history. Prices show little deflection from a week ago, although foundry iron has sold down to $20, valley.

PITTSBURGH, March 23.—The pig iron market continues dull, despite the approach of the second quarter. Many melters have enough iron on hand or coming to them for April and will defer buying until the middle of that month. Others must close soon, having taken out all their first quarter tonnage one to three weeks ago. Large sanitary ware and radiator manufacturers are expected to close within two weeks. It is understood the Westinghouse Electric & Mfg. Co. closed for 2600 tons with a Cleveland interest. A few small buyers are protected for second quarter at $20.50, base. The Titusville Iron Works is lining up quotations for second quarter requirements, with a few other buyers in the 1000-ton class. No interest in basic is developing and $20 is the unchanged price. A few sales of bessemer are noted, one producer reporting an aggregate of 700 tons in several days, the largest individual lot being 200 tons. The Wheeling Mold & Foundry Co. closed for a portion of its recent inquiry for 500 to 1000 tons, at $21 valley. A few filling in tonnages of malleable were sold at $20.50, valley. No details are available here concerning purchases by the Canton Malleable Iron Co. or the Warren Tool & Forge Co. The A. M. Byers Co. is blowing in a stack Thursday or Friday to make gray forge. The date for resuming the Claire stack is indefinitely postponed. The Shenango Furnace Co. has not decided when to resume operations of one banked furnace.

Boston, March 23.—Pig iron buying for second quarter is developing slowly in New England. A Massachusetts foundry last week took 500 tons of No. 2 eastern Pennsylvania (2.25 to 2.75 silicon) at $22.25, furnace, or $25.90 delivered. Several other orders of about the same tonnage have been placed. The Buffalo price is firm at $21, furnace although the first two silicon grades have been offered at this same level. Continental iron has sold as high as $22, Boston, and as low as $20.50 for No. 2 grade.

Philadelphia, March 23.—One eastern steel mill has placed 20,000 tons of basic, and another has purchased several thousand tons. A third placed several thousand tons and is expected to buy around 30,000 tons. The current basic market is about $22.50, delivered. The Pennsylvania railroad is inquiring for 3000 to 4000 tons of foundry iron. The Baldwin Locomotive Works is inquiring for 1000 tons. Several new low phosphorus inquiries are pending. Eastern foundry iron is firm at $22, base furnace. Foreign offerings continue active at unchanged prices.

Pig Iron Prices

Prices per gross ton

Bessemer, valley	$21.00
Bessemer, Pittsburgh	22.76
Basic, valley	20.00
Basic, Pittsburgh	21.76
Basic, Buffalo	20.00 to 20.50
Basic, del., eastern Pa.	22.50
Malleable, valley	20.50
Malleable, Pittsburgh	22.26
Malleable, del., Cleveland	21.50
Malleable, Chicago	23.00
Malleable, Buffalo	21.00
Malleable, del., eastern Pa.	23.25 to 24.00
No. IX, eastern del., Phila.	23.50 to 24.76
No. IX, Buffalo	22.50 to 23.50
No. 1 foundry, Chicago	23.50
No. 2 foundry, valley	20.50
No. 2 foundry, Pittsburgh	22.26
No. 2 foundry, Buffalo	21.00
No. 2 foundry, Chicago	23.00
No. 2 foundry, Granite City	23.50 to 24.00
No. 2 foundry, Ironton furnace	20.50 to 21.00
No. 2 foundry, del., Cleveland	21.50
No. 2 foundry, del., Phila.	22.76 to 23.39
No. 2 foundry, N. J., tidewater	23.39 to 23.76
No. 2X, eastern del., Phila.	23.26 to 23.89
No. 2X, east, N. J., tidewater	23.89 to 24.26
No. 2X, foundry, Buffalo, furnace	21.50
No. 2X, eastern del., Boston	25.65 to 26.65
No. 2X, Buffalo, del., Boston	25.91 to 26.91
Continental foundry f.o.b. Boston	20.50 to 21.50
India, 2.25 to 2.75 silicon, delivered cars, Boston	21.00 to 22.00
No. 2 Alabama, Birmingham	22.00 to 23.00
No. 2 Alabama, Cincinnati	26.69
No. 2 Tenn., Birmingham	21.50
No. 2 Tenn., Cincinnati	25.19
No. 2 southern, Philadelphia	27.61 to 28.01
No. 2 southern, Chicago	28.01
No. 2 southern, Chicago (barge and rail)	26.18
No. 2 southern, Boston (rail and water)	27.91 to 28.91
No. 2 southern, Cleveland	27.01 to 28.01
No. 2 southern, St. Louis	25.42 to 26.42
No. 2X, Virginia, furnace	23.00 to 23.25
No. 2X, Virginia, Phila.	28.17 to 28.42
No. 2X, Virginia, Jersey City	28.54 to 28.79
No. 2X, Virginia, Boston	28.92 to 29.17
Gray forge, eastern Pa.	22.50 to 23.00
Gray forge, val. del. Pitts.	21.76
Low phos., standard, valley	28.00 to 28.50
Low phos., standard, Phila.	24.76 to 27.79
Low phos., Lebanon, furnace	23.00 to 24.00
*Low phos., English	24.26 to 24.76
Charcoal, Birmingham	31.00 to 32.00
Charcoal, Superior, Chicago	29.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $27.50; 6 per cent $28.50; 7 per cent $29.50; 8 per cent $30.50; 9 per cent $32.00; 10 per cent $34.00; 11 per cent $36.00; 12 per cent $38.00; 13 per cent $40.00; and 14 per cent $42.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $36.00; 11 per cent $38.00; 12 per cent $40.00; 13 per cent $42.00; 14 per cent $44.00; 15 per cent $46.00; 16 per cent $49.00; 17 per cent $51.50.

*Duty paid, delivered Philadelphia consumers.

Buffalo, March 23.—Inquiry for second quarter iron is increasing. The present total probably is close to 15,000 tons. One consumer wants 5000 tons of foundry iron, another 3000 to 4000 tons of foundry and malleable. Sales last week included 2000 tons to the Massey-Harris Harvester Co., Batavia, N. Y. A 600-ton lot was purchased by an Erie melter. Buffalo makers declare they are obtaining $21, base, for low silicon foundry and malleable.

Cleveland, March 23.—A hesitant attitude on the part of buyers still is the dominant characteristic of the pig iron market. The General Electric Co. is in the market for 5000 tons of various grades of iron for its eastern plants, including 1800 tons for Erie, Pa., and the Pennsylvania railroad is inquiring for 4000 to 5000 tons for Altoona, Pa. These with other miscellaneous inquiries run the total up to around 15,000 tons pending, a larger amount than has appeared at any one time in some weeks. Small lot buying for immediate needs, however, overshadows the market. The total booked during the past week by interests with headquarters here is about 10,000 tons. The Westinghouse Electric & Mfg. Co., is expected to close this week with a Cleveland seller for 2600 tons for its Cleveland plant. While some of the leading sellers have booked small and medium size orders during the past week at $20.50 valley a Cleveland furnace interest has gone to $20, base, valley, in selling outside the Cleveland area. It is reported quotations as low as $19.50, base, valley, have appeared, but this lacks confirmation. Buffalo makers generally have been holding to a price of $21, base, furnace; and lake furnaces outside of Cleveland continue to obtain $22, base, furnace, on sales in Michigan, Ohio and Indiana. The Cleveland market is easier at $21, base, furnace. One maker is understood to have quoted below that base on a sizable inquiry now pending.

The McKinney Steel Co. has blown in a third stack at Cleveland.

Cincinnati, March 23.—Despite lack of interest in pig iron, prices appear firm. The Columbus Malleable

(*Concluded on Page* 836)

Coke

Furnaces Contract for Beehive Coke — Buying Movement is Considered Just Ahead

SEVERAL beehive furnace coke contracts for second quarter have been closed at $3.10 to $3.25, or 15 to 25 cents under the market of a week ago. Inquiries and negotiations by sellers and buyers are more numerous, and the trade expects a buying movement to develop soon. Demand from foundries for by-product and beehive coke is holding up.

Pittsburgh, March 23.—It is understood one or two blast furnaces have closed quietly for second quarter beehive coke requirements at $3.10 to $3.25. Others continue to defer buying since some producers still quote $3.50 and higher. Those naming $4 have high-price contracts still to be discharged, and to lower their quotation would mean readjustment of tonnage already on books. The Rogers, Brown Iron Co. is understood to have closed for April needs. The receiver of the Struthers Furnace Co. is negotiating for coke. A few eastern interests, including Witherbee, Sherman & Co. Inc., are inquiring. The trade, therefore, believes an active buying period is just ahead. One or two blocks of coke for gas making have been closed at more than $3.25. Several more sales of this character now are under negotiation. Standard furnace coke is quotable today at $3.10 to $3.35, despite some distress sales at $3. Foundry coke sales are not numerous. Some second quarter contracts have been booked. Special brands are $5 to $5.50. Standard 72-hour fuel is being sold at $4.50 to $5.

Production of coke in the Connellsville region for the week ended March 13 was 188,990 tons, against 199,550 tons the preceding week, according to the *Connellsville Courier*.

Boston, March 23.—While demand for foundry coke is less active than earlier in the month, shipments of domestic by-product coke continue at a high rate. The price of the foundry grade of by-product coke is unchanged at $13, delivered.

Cincinnati, March 23.—The movement of foundry coke, particularly the by-product grade, is good and producers expect heavier specifications next month owing to increased foundry operations. Interest in the furnace situation is lacking and no material change is expected until there is an improvement in blast furnace operations. New River foundry coke ranges from $7.50 to $8, while the Wise county grade is firm at $5, ovens.

New York, March 23.—Business in the coke market is active for spot tonnages. Foundry coke is quotable at $4.25 to $5.50, Connellsville, and furnace coke is $3.25 to $3.50, Connellsville. Prices of by-product coke are unchanged.

Detroit, March 23.—The coke situation is unchanged. Domestic consumption continues heavy. Demand for by-product foundry coke is about normal with the supply equal to requirements. The price remains at $8.50 ovens.

Chicago, March 23.—By-product ovens on foundry coke continue to be operated at capacity and the market is firm at $10.50, Chicago ovens, or $11, delivered Chicago.

St. Louis, March 23.—Demand for metallurgical coke is brisk, reflecting the large melt at iron and steel plants, and continued heavy requirements of smelters and other industrial users. Improvement is reported in the demand from melters in the West and Southwest, and there has been some contracting. Local by-product plants are operating at a high rate, and are able to sell their current output. Quotations are unchanged.

Birmingham, Ala., March 23.—Production and shipment of coke are active and steady. Quotations still are $5.50 to $6 for the foundry grade.

Coke Prices

Beehive, Ovens

Prices per net ton

Connellsville furnace	$ 3.10 to 3.35
Connellsville foundry	4.50 to 5.00
New River foundry	7.50 to 8.00
New River furnace	5.25 to 5.50
Wise county furnace	4.00 to 4.25
Wise county foundry	5.00
Alabama foundry	5.50 to 6.00
Alabama furnace	5.00 to 5.25

By-Product

Foundry, Newark, N. J.; del.	$11.01 to 11.52
Foundry, Chicago, ovens	10.50
Foundry, New England, del.	13.00
Foundry, St. Louis	10.00
Foundry, Granite City, Ill.	10.00
Foundry, Birmingham	5.50 to 6.00
Foundry, Indianapolis, del.	11.25

Ferroalloys

Ferromanganese Cut Further to $90—Competition Is Spirited

New York, March 23.—Severe competition continues to feature the ferromanganese market and a further cut of $5 has brought the going basis down to $90, duty paid tidewater. The competition appears to be principally between domestic producers. The indication are at least 5000 tons was sold the past week, making the total of the present movement approximately 15,000 tons. Market developments are watched closely by buyers as considerable more tonnage is pending.

Special ferroalloys are in a steady market with shipments continuing of good size. The same is true of ores with the exception of wolframite, tungsten ore. The latter is weighted down with surplus stocks here. Spot can be had at $12 a unit and less, dependent on circumstances, and futures are nearly as low. It is said that business is being done more on exact analysis than ever before.

Pittsburgh, March 23.—Of all items on the ferroalloy list, ferromanganese continues most active. Domestic sellers have been exceedingly busy since the price reached $90, Atlantic seaboard, in adjusting contracts previously made and in taking on new business for the remainder of the year. The price on English material still is $110, c.i.f. Atlantic seaboard. Practically all the important buyers now are protected until Dec. 31 but a few of the smaller consumers continue to hold off for a possible lower figure. It now appears probable that prices shortly may advance. Consumption proceeds at a fair rate and shipments accordingly are good. This last holds true of other alloys. On spiegeleisen little or no additional 19 to 21 per cent material is available for shipment during the first half. Some 16 to 19 per cent material is available for shipment prior to July 31. Prices are unchanged.

Chicago, March 23.—Domestic ferromanganese is being offered at $90, seaboard, and sales aggregating several hundred tons have been made. The foreign price is unchanged at $110.

Will Sinter Flue Dust

A sintering plant of the Dwight-Lloyd type will be installed near the new blast furnace of the Central Furnace Co., Massillon, O. General and detail plans and specifications for the reclamation plant recently were prepared by the Freyn Engineering Co., Chicago. Contracts for the structural steel building, hoppers, chutes, bins, etc. and their erection have been placed with the Morgan Engineering Co., Alliance, O. Actual construction will start about April 15.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resales	$90.00 to 110.00
Ferromanganese delivered Pittsburgh	94.79 to 114.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	34.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, per pound contained	1.14 to 1.18
Ferrochrome, 60 to 70 chromimum, 6 to 8 carbon, cents per pound contained, delivered	11.00 to 11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 4.00
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00
Ferrophosphorus, electrolytic, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent materials)	122.50

†Duty paid.

Plates

Chicago Carbuilders Specify 30,000 Tons—Miscellaneous Orders Small—Price Views Firmer

PLATE business continues of medium size, miscellaneous character. Specifications from Chicago car builders during the week totaled 30,000 tons, and considerable oil storage tank work is developing. While some eastern mills still quote 1.80c, Pittsburgh, makers generally show more firmness, and 1.90c is minimum with large producers for second quarter.

PLATE PRICES, PAGE 824

Chicago, March 23.—Freight car builders are providing the bulk of current plate business. Specifications from this source reached 30,000 tons last week; a tonnage probably as great still remains to be placed for cars booked earlier in the quarter. Considerable oil storage tank work is coming out from the Mid-Continent and Texas fields. The Gulf Refining Co. is reported to have been a heavy buyer of plates recently from an eastern interest. The Roxana Petroleum Corp., St. Louis, is expected shortly to inaugurate actual construction work on its proposed refinery and tank farm at East Chicago, Ind., probably requiring upward of 20,000 tons of plates. Plate mill schedules for a number of weeks have been made up only a week or 10 days in advance but specifications have improved so that capacity is now engaged for several weeks. Plates are quoted at 2.10c, Chicago, and the market in competitive territory is claimed to be firmer.

New York, March 23.—Some second quarter plate contracts have been signed but most consumers are slow about contracting and 1.90c Pittsburgh is firm for that period. Current business is quoted 1.80c to 1.90c Pittsburgh.

Pittsburgh, March 23.—Local mills are well supplied with car plate business but some of the fabricators report a dearth of orders from those lines ordinarily consuming large tonnages of tanks particularly. Miscellaneous small orders keep up well. Competition is keen. Some eastern plate mills are holding to low price levels, but in the Pittsburgh market 1.90c is firm, and some mills have established that level as a definite minimum for second quarter.

Cincinnati, March 23.—The Louisville & Nashville railroad has closed with the Tennessee Coal, Iron & Railroad Co., for 750 tons of plates for prompt shipment.

The Big Four Railroad is in the market for 850 tons of plates, shapes and sheets for second quarter delivery. Bids close April 2.

Cleveland, March 23.—The plate market in this district seems finally to have established itself on the basis of 1.90c, Pittsburgh or 2.09c, Cleveland. Sales at this figure continue to be more numerous and deviations from it are more exceptional, applying usually to old quotations. New tonnage is in good volume and in some cases buyers have had a little more difficulty in getting deliveries as promptly as desired. No considerable amount of second quarter contracting is being done as consumers are inclined to buy material as they need it rather than to commit themselves at a price on future requirements. An award of 300 tons for stills for the Texas Co. has been made.

CONTRACTS PLACED

3600 tons, pipe line, Medford, Oreg., to Beall Pipe & Tank Co.
1600 tons, pipe line, San Rafael, Calif., to Western Pipe & Steel Co.
1000 tons, pipe line, Bend, Oreg., to Beall Pipe & Tank Co.
500 tons, pipe line, the Dalles, Oreg., to Beall Pipe & Tank Co.
350 tons, standpipe, 80-foot diameter ¼ to ⅜-inch thick, 1,500,000 gallons, Seattle, to Puget Sound Machinery depot.
250 tons, two barges for the Missouri Portland Cement Co., St. Louis, to the Dravo Contracting Co., Neville Island, Pittsburgh.
160 tons, pipe line, Riverside, Calif., to Lacy Mfg. Co.

CONTRACTS PENDING

250 tons, 500,000 gallon elevated tank, about 140 feet high, for Cuyahoga Falls, O.; bids in.
250 tons, two barges for the Pittsburgh Plate Glass Co., Creighton, Pa.; bids being taken.
1000 tons, towboat and six barges for the Crusader Oil Co.; pending.

Philadelphia Imports Up

Philadelphia, March 23.—Following are the importations of iron and steel at this port for the week ended March 20; 3750 tons of pig iron, England, 1296 tons Calcutta, 535 tons France, 350 tons Netherlands, 2000 tons, Germany; 270 tons iron ore, Germany, 10 tons manganese ore, Germany, 22 tons steel strips, England, 2 tons steel tubes, England, 13 tons galvanized steel strips, England, 123 tons structural steel, Belgium, 19 tons steel round bars, Belgium, 515 tons steel blooms, France, 1 ton steel balls, Sweden, and 137 tons steel bars, Netherlands.

Semifinished

Mills Open Books for Second Quarter, But Buying Is Slow —Sheet Bars Held at $36

SOME additional contracts for the second quarter have been closed with Pittsburgh valley mills on a basis of $36 for sheet bars and $35 for billets and slabs. Demand is only moderately active. One lot of 20,000 tons of standard billets for shipment outside was offered to an Ohio mill below $35, mill, but was not accepted.

SEMIFINISHED STEEL PRICES, PAGE 824

Pittsburgh, March 23.—Makers of semifinished steel report that with one or two exceptions specifications on first quarter contracts for sheet bars, billets and slabs will be in hand before April 1. Between now and then they will negotiate with their customers on second quarter requirements, and they indicate the price wlil be $35 on billets and slabs, 4 x 4-inch or equivalent, and $36 on sheet bars, and small billets. Beginning this week forging billet users also will protect themselves on second quarter requirements, and the price will be $40. In all these various lines, business is expected to come up fully to the tonnage level of the first quarter. Wire rod contracts are maturing and the $45 price applies on renewals. Skelp is quoted at 1.85c to 1.90c, with little interest developing.

Youngstown, O., March 23.—A few more customers have closed on second quarter sheet bar tonnages with makers in this district at $36, Youngstown. Others continue to defer action. Standard billets and slabs for next quarter are quoted at $35, Youngstown. No new demand is current, the principal activity being in the form of specifications.

Cleveland, March 23.—The leading maker of sheet bars, billets and slabs here has opened its books for the second quarter and has entered a considerable tonnage for its regular customers on a basis of trade paper quotations applying at time of delivery. Small lots of sheet bars, up to 500 tons, for early delivery have been taken at $36, Cleveland, a few small sales of billets and slabs have been closed at $35. An order for 20,000 tons of standard billets for delivery outside the state during the second quarter offered at below $35, mill, has been refused.

Chicago, March 23.—Between 3000 and 4000 tons of 1¾-inch billets has been bought by a local user. The market is unchanged at $35, base, Chicago, for small billets and $36 for sheet bars.

Iron and Steel Scrap Prices

Corrected to Tuesday Noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	$13.00 to 14.00
Boston (dealers)	11.00 to 11.50
Buffalo	15.00 to 15.50
Buffalo, No. 1	16.00 to 16.50
Chicago	14.00 to 14.25
Cincinnati (dealers)	12.50 to 13.00
Cleveland, No. 1	14.50 to 15.00
Cleveland, No. 2	13.50 to 14.00
Detroit	14.75 to 15.25
Eastern Pennsylvania	16.00 to 16.50
Bethlehem delivery	15.50
New York (dealers)	11.50 to 12.00
Pittsburgh	17.00 to 17.25
St. Louis	13.50 to 14.00
Valleys, No. 1	17.00
Valleys, No. 2	15.00 to 16.00

COMPRESSED SHEETS

Buffalo	14.25 to 14.75
Chicago	12.00 to 12.50
Cleveland	13.50 to 14.00
Detroit	12.50 to 13.00
Pittsburgh	15.50 to 16.00
Valleys	15.50 to 16.00

BUNDLED SHEETS

Buffalo	13.50 to 14.00
Cincinnati (dealers)	9.00 to 9.50
Cleveland	11.50 to 12.00
Eastern Pennsylvania	13.50
Pittsburgh	14.50 to 15.00
St. Louis	8.50 to 9.00

SHEET CLIPPINGS, LOOSE

Chicago	8.00 to 8.50
Cincinnati	8.00 to 8.50
Detroit	9.75 to 10.25

STEEL RAILS, SHORT

Birmingham	14.00 to 15.00
Buffalo	17.00 to 17.50
Chicago	17.75 to 18.25
Cincinnati (dealers)	17.50 to 18.00
Cleveland (over 6 ft.)	15.00 to 16.00
Detroit	17.00 to 17.50
St. Louis	17.00 to 17.50

STOVE PLATE

Birmingham	14.00 to 14.50
Boston (consumers)	13.50 to 14.00
Buffalo	15.00 to 15.50
Chicago	15.75 to 16.25
Cincinnati (dealers) (net)	9.00 to 9.50
Cleveland	13.00 to 13.50
Detroit (net tons)	13.25 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	10.25 to 10.75
Pittsburgh	13.50 to 14.00
St. Louis	14.75 to 15.25

LOW PHOSPHORUS

Buffalo	18.50 to 19.00
Cincinnati (dealers)	17.00 to 17.50
Eastern Pennsylvania	20.00 to 21.00
Pitts. billet and bloom crops	21.50 to 22.00

SHOVELING STEEL

Chicago	14.00 to 14.25
Pittsburgh	13.00 to 13.50
St. Louis	13.50 to 14.00

KNUCKLES, COUPLERS, SPRINGS

Chicago	17.25 to 17.75
Eastern Pennsylvania	19.00 to 21.00
Pittsburgh	19.00 to 19.50
St. Louis	14.50 to 15.00

FROGS, SWITCHES, GUARDS

Chicago (cut)	15.25 to 15.75
Eastern Pennsylvania	16.00 to 16.50
St. Louis	15.25 to 15.75

ANGLE BARS—STEEL

Buffalo	16.50 to 17.00
Chicago	16.50 to 17.00
St. Louis	14.50 to 15.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	$12.00 to 13.00
Boston (dealers)	13.00 to 13.50
Buffalo, No. 1	14.00 to 14.50
Buffalo, No. 2	15.50 to 16.00
Chicago, No. 1	14.50 to 15.00
Chicago, No. 2	14.00 to 14.25
Cincinnati, No. 1 (dealers)	9.50 to 10.00
Cleveland, No. 1	13.50 to 14.00
Eastern Pennsylvania	18.00
New York, No. 1 (dealers)	14.50 to 15.00
Pittsburgh, No. 1	13.00 to 13.50
Pittsburgh, No. 2	17.00 to 17.25
St. Louis, No. 1	13.00 to 13.50
St. Louis, No. 2	13.50 to 14.00

WROUGHT PIPE

Boston (dealers)	11.00 to 11.50
Buffalo	15.00 to 15.50
Eastern Pennsylvania	16.00 to 16.50
New York (dealers)	12.25 to 12.75

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	17.00

BUSHELING

Buffalo	14.25 to 14.75
Chicago, No. 1	12.25 to 12.75
Chicago, No. 2	9.00 to 9.50
Cincinnati, No. 1 (dealers)	9.50 to 10.00
Cleveland, No. 1	12.00 to 12.50
Cleveland, No. 2	11.50 to 12.00
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	15.00
St. Louis, No. 1	11.50 to 12.00

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston (chemical)	8.50 to 9.00
Buffalo	11.00 to 11.50
Chicago	9.50 to 10.00
Cincinnati (dealers)	8.00 to 8.50
Cleveland	11.50 to 12.00
Detroit	10.25 to 10.75
Eastern Pennsylvania	14.00
New York (dealers)	9.00 to 10.25
Pittsburgh	13.00 to 13.50
St. Louis	7.50 to 8.00

CAST IRON BORINGS

Birmingham (chemical)	15.50 to 16.50
Birmingham (plain)	8.00 to 9.00
Boston (chemical)	11.00 to 11.25
Boston (dealers)	8.50 to 9.00
Buffalo	12.25 to 12.75
Chicago	12.00 to 12.25
Cincinnati (dealers)	8.50 to 9.00
Cleveland	11.50 to 12.00
Detroit	10.75 to 11.25
Eastern Pennsylvania	14.00
Eastern Pennsylvania (chem.)	15.50 to 16.00
New York (dealers)	9.25 to 10.25
Pittsburgh	13.00 to 13.50
St. Louis	10.50 to 11.00
Valleys	12.50 to 13.00

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	8.00 to 8.50
Buffalo	12.25 to 12.75
Cincinnati (dealers)	8.00 to 8.50
Cleveland	11.50 to 12.00
Detroit	10.75 to 11.25
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	9.75 to 10.25
Pittsburgh	13.00 to 13.50

PIPES AND FLUES

Chicago	12.00 to 12.50
Cincinnati (dealers)	8.50 to 9.00
Cleveland	11.00 to 11.50
St. Louis	10.00 to 10.50

RAILROAD GRATE BARS

Buffalo	13.50 to 14.00
Chicago	15.00 to 15.50
Cleveland	13.50 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	11.25 to 11.75
St. Louis	13.00 to 13.50

FORGE FLASHINGS

Boston (dealers)	9.50 to 10.00
Buffalo	13.00 to 13.50
Chicago	10.00 to 10.50
Cleveland (under 10 in.)	12.75 to 13.25
Cleveland (over 10 in.)	12.75 to 13.25
Detroit	10.50 to 11.00
Pittsburgh	14.00 to 14.50

FORGE SCRAP

Boston (dealers)	9.00 to 9.50
Chicago	18.00 to 18.50
Eastern Pennsylvania	14.50 to 15.00

ARCH BARS AND TRANSOMS

Chicago	23.00 to 23.50
St. Louis	20.50 to 21.00

Iron Steel Works Scrap

AXLE TURNINGS

Boston dealers	$9.50 to 10.00
Buffalo	14.50 to 15.00
Chicago	14.50 to 15.00
Cleveland	13.75 to 14.25
Eastern Pennsylvania	15.00
Pittsburgh	16.00 to 16.50
St. Louis	11.00 to 11.50

STEEL CAR AXLES

Birmingham	19.00 to 20.00
Boston (shipping point)	18.00 to 18.50
Buffalo	16.50 to 17.00
Chicago	19.50 to 20.00
Cleveland	17.50 to 18.00
Eastern Pennsylvania	24.00 to 25.00
Pittsburgh	22.50 to 23.00
St. Louis	20.00 to 20.50

SHAFTING

Boston (shipping point)	17.50 to 18.00
Chicago	19.75 to 20.25
Eastern Pennsylvania	22.00 to 23.00
New York (dealers)	17.50 to 18.00
St. Louis	17.25 to 17.75

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	$16.00 to 16.50
Boston (consumers)	17.50 to 18.00
Buffalo, iron	15.50 to 16.00
Buffalo, steel	16.50 to 17.00
Chicago, iron	16.75 to 17.25
Chicago, steel	18.00 to 18.50
Cincinnati	12.50 to 13.00
Eastern Pennsylvania	18.00 to 18.50
New York iron (dealers)	14.50 to 15.00
Pittsburgh, iron	18.00 to 18.50
Pittsburgh, steel	19.00 to 19.50
St. Louis, iron	16.50 to 17.00
St. Louis steel	17.00 to 17.50

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 18.00
Boston	19.00 to 19.50
Buffalo	15.50 to 16.00
Chicago, No. 1 machinery	18.75 to 19.25
Chicago No. 1 railroad or agricultural	18.00 to 18.50
Cincinnati No. 1 Machinery cupola (net tons dealers)	18.50 to 19.00
Cleveland, cupola	17.25 to 17.75
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania, cupola	18.00 to 18.50
New York, cupola (dealers)	15.00 to 15.50
Pittsburgh, cupola	17.00 to 17.50
San Francisco, delivered	20.00 to 21.00
Seattle	17.00
St. Louis, railroad	16.50 to 17.00
St. Louis, agricultural	16.25 to 16.75
St. Louis, machinery	18.50 to 19.00
Valleys	17.50

HEAVY CAST

Boston	17.50 to 18.00
Buffalo (breakable)	14.50 to 15.00
Cleveland	13.00 to 13.25
Detroit (Automobile) (net tons)	20.00 to 20.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	14.00 to 14.50
Pittsburgh	14.50 to 15.00

MALLEABLE

Boston, railroad	19.50 to 20.00
Buffalo	18.00 to 18.50
Chicago, agricultural	16.50 to 17.00
Chicago, railroad	17.50 to 18.00
Cincinnati, railroad (dealers)	14.50 to 15.00
Cincinnati, agricultural (dealers)	18.00 to 18.50
Cleveland, agricultural	18.00 to 18.50
Cleveland, railroad	19.00 to 19.50
Detroit	15.50 to 16.00
Eastern Pennsylvania, railroad	17.00
Pittsburgh, railroad	18.50 to 19.00
St. Louis, agricultural	13.50 to 14.00
St. Louis, railroad	15.75 to 16.25

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	$15.00 to 16.00
Boston (dealers)	12.50 to 13.50
Buffalo	17.00 to 17.50
Chicago	16.50 to 17.00
Cleveland	17.00 to 17.25
Eastern Pennsylvania	17.50 to 18.00
New York	14.00 to 14.50
Pittsburgh district	19.00 to 19.50
St. Louis	16.25 to 16.75

LOCOMOTIVE TIRES

Chicago, No. 1	18.00 to 18.50
Chicago, cut	18.00 to 18.50
St. Louis, No. 1	16.50 to 17.00

LOW PHOSPHORUS PUNCHINGS

Chicago	17.25 to 17.75
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	19.00 to 19.50

Scrap

Large Supply and Easy Delivery Keeps Market Quiet—Prices Undergo Few Changes

CONSUMERS of scrap have no inclination to cover ahead for their requirements and spot buying is the rule. Dealers are not disposed to seek tonnage by concessions. Prices are holding at about the level of several weeks. Supplies are ample and dealers are working out their contracts with few new ones being booked. No indications of a change are apparent.

Chicago, March 23.—Sentiment in iron and steel scrap shows no improvement and prices remain unchanged save for some grades which are weaker. Larger dealers profess to see no major movement impending in prices or demand. Consumption has not declined but the supply is large and melters spread their purchases thinly. Two users of heavy melting steel have been buying at $14.25, one having taken 2500 tons. The top for cast borings now seems to be $12.25 and the range $12 to $12.25. Malleable is slower than either cast or steel.

Boston, March 23.—Sales of iron and steel scrap in New England while not active are holding their own, and prices are firm. A New Jersey manufacturer has paid $11.25 shipping point this district for several carloads of chemical borings. Mixed borings and turnings have sold for shipment in Pennsylvania at $9 shipping point. Heavy melting steel holds at $11.75 shipping point. The American Steel & Wire Co., Worcester, Mass., recently took a car of heavy steel at $13.50 delivered.

New York, March 23.—Although trading continues slack and supplies are accumulating, scrap prices are unchanged. While there is little tonnage to afford a test, it is apparent that dealers are not inclined to attract business by offering concessions.

Philadelphia, March 23.—A number of scrap consumers who contracted their first quarter requirements in December hesitate to take similar action for second quarter, believing prices will not advance. Dealers want $17 delivered for melting steel, stating most sales recently have caused loss. Several small dealers have failed and several yards have closed as prices do not cover cost of preparing scrap.

Buffalo, March 23.—There are no open offers for heavy melting steel but consumers might pay $15.50 for a desirable tonnage. A sale to a Depew melter at $17.25, consuming point, has been made here, but this consumer requires an exceptionally high grade. This offer has been withdrawn. Dealers have few unfilled contracts.

Pittsburgh, March 23.—With practically all buyers of scrap fully satisfied for the time being, the market reflects weakness. One buyer north of Pittsburgh has been able to pick up some tonnage of heavy melting steel at $17.25, but that is the top. Another nearby user is offering $17 today, and at Weirton, W. Va. and one or two other points none can be sold at more than $16.50. Several small sales of steel specialties are noted at a maximum of $19.50 but only one buyer is offering to pay that today.

Cincinnati, March 22.—Stagnation characterizes iron and steel scrap, with consumers manifesting no interest in offerings and accepting limited tonnages on contracts. Most mills have sufficient to meet immediate requirements.

Cleveland, March 23.—Absence of trading continues to feature iron and steel scrap. Some buying is noted but is of small volume and dealers report lack of interest on the part of melters, who declare themselves well supplied. Prices are largely nominal and unchanged.

Detroit, March 23.—Iron and steel scrap remains unchanged. Demand continues limited and buying is restricted for most part to small quantities by dealers to fill actual orders on hand. Prices continue weak and unsteady, although unchanged.

St. Louis, March 22.—Iron and steel scrap continue to mark time. Buying by mills and foundries is on a hand-to-mouth basis, and the aggregate tonnage changing hands is not impressive. Dealers report that many who at this time of year ordinarily contract for round tonnages are purchasing only car lots to apply on immediate needs. With the exception of malleable and two or three specialties, quiet extends to all grades.

Birmingham, Ala., March 22.—No change is noted in iron and steel scrap. Much old material is moving but mainly on contracts. New business is light. Quotations are weak but unchanged.

Sheets

Prices of All Grades, Except Black, Show More Firmness—Market Moderately Active

MORE firmness is noted in prices of blue annealed and galvanized sheets. Black sheets still are obtainable at 3.25c, Pittsburgh, although leading makers continue to quote 3.35c. Some fairly good orders have been placed for various grades, but the spring building demand has not yet asserted itself. More liberal specifications have released by the motorcar builders.

SHEET PRICES, PAGE 824

Pittsburgh, March 23.—Different consuming lines keep busy sending in sheet specifications. Some buyers now find it necessary to anticipate needs farther ahead than in several months. Demand for full finished sheets is gradually improving and the full finished plants of some makers are being operated practically 100 per cent. Additional attractive orders were placed in the past week by makers of popular priced automobiles. Agricultural implement makers' orders for sheets are liberal, as are those from the electrical industries. While there is considerable room for improvement in galvanized, it is coming to the front in better shape and makers of blue annealed sheets have all they can do to keep abreast of orders. The American Sheet & Tin Plate Co., reports that since the first of the month specifications on hot mill products have been fully up to its producing capacity. It continues to keep more than 80 per cent of sheetmaking equipment engaged. The general average for the industry is about 85 per cent. Prices on sheets are subjected to but little variation, one or two makers of black still finding it convenient to quote 3.25c. Galvanized sheets are fairly firm at 4.60c, blue annealed are firm at 2.50c, and full finished at 4.40c.

Boston, March 23.—Black sheet demand is dull and prices continue weak. A leading eastern producer reports an increase in sales of galvanized sheets at 4.60c, Pittsburgh.

Philadelphia, March 23.—A number of second quarter sheet contracts have been closed quietly, but most consumers hesitate to act. Some reports of shading are heard but investigation shows most business is bringing full prices. Jobbers' specifications are improving.

Buffalo, March 23.—Sheet inquiry has improved, especially for blue annealed, which are offered at 2.50c, Pittsburgh. Black sheet bookings for second quarter are increasing, sales being made at 3.35c. Galvanized are quoted at 4.60c.

Youngstown, March 23.—Brighter conditions are in store for the sheet industry if the market swing of the past week can be taken as an indication. Second quarter sheet business placed during the week is cred-

ited as exceeding that placed a year ago. Moreover, customers are becoming more insistent in request for immediate shipments. Many consumers whose quarterly requirements run into a large tonnage have not arranged for forward placement but action is anticipated this week. Inquiry is slightly better and current tonnage is larger, assuring the continuation of 90 per cent operation of mills at least another week. The tendency toward firmness of galvanized and blue annealed prices, which began early this month, has culminated in the elimination of quotations below 4.60c and 2.50c, base, Pittsburgh. All district producers are quotating on this basis and any galvanized going for less invariably represents resale or shopworn tonnage. Demand for galvanized, however, is at low ebb. Black is quotable at 3.25c to 3.35c. Automobile and metal furniture sheets continue in good demand with quotations firm at 4.40c, Pittsburgh. Requests for immediate delivery continue to come from consumers of common and full-finished sheets indicating that little or no tonnage is in stock.

Chicago, March 23.—Considerable blue annealed sheet tonnage has come out the past few days and 45 days is about the best delivery that western mills can promise. Many users display eagerness to obtain more prompt shipment but makers say they are filling orders in turn. The situation in galvanized has improved. Black sheets are trailing but have not lost any ground; rather, galvanized and blue annealed have forged ahead. Western sheet capacity is occupied 90 to 95 per cent. Prices are unchanged on the basis of 4.75c, Chicago, for galvanized, 3.50c for black and 2.65c for blue annealed.

St. Louis, March 23.—A further slight improvement has developed in specifications for sheets. Some contracting for second quarter is reported, but the total tonnage is under expectations. Prices are unchanged.

Tin Plate

Industrial Operating at 95 Per Cent —Additional Buying Noted

TIN PLATE PRICES, PAGE 824

Pittsburgh, March 23.—With 95 per cent or more of tin plate making equipment active and with enough business in hand to keep that percentage and possibly increase it before April 1, the tin plate industry occupies an enviable position. All makers have good order books and are discharging them as rapidly as they can. The American Sheet & Tin Plate Co. is about to start its Pittsburgh works at New Kensington, Pa., which has not been operated for two years, and it is possible that other inactive mills will resume. Some export business is developing in small lots, and additional buying for domestic consumption is noted. The price is unchanged at $5.50, and stock plate prices are higher than usual.

Strip Steel

Orders at Better Rate than February —Buying Is Steady

STRIP PRICES, PAGE 824

Pittsburgh, March 23.—Incoming orders for hot and cold strip steel are 20 per cent greater than in February. Shipments are ahead of February. While most of the increase is in hot strips, cold strips are coming to the front as well. Cold strip mills average 65 per cent of capacity but hot mills are easily on a 90 per cent basis. Demand is diversified, almost every consuming line taking its quota of both grades. Prices are firm at 3.90c on cold and 2.30c on hot, with reports of minor variations from the Middle West. Second quarter contracts are closed at full prices.

Pipe

More Line Pipe Business Being Projected—Cast Pipe Buying Continues Heavy

CONSIDERABLE activity is contemplated in the line pipe market, with various new installations being projected. Mill operations are from 85 to 90 per cent and prices firm. Cast buying still is heavy. French makers are low on 6000 tons at Holyoke, Mass. Columbia bought 5300 tons from United States makers instead of French as at first announced.

PIPE PRICES, PAGE 824 AND 858

Pittsburgh, March 23.—The 170-mile, 22-inch line pipe order taking 45,000 tons for the Standard Oil Co. of New Jersey for a line in Louisiana noted placed last week was divided between the National Tube Co. and the Spang-Chalfant Co. here. The former received about 105 miles and the latter approximately 65 miles. Another gas line to come up soon will be an installation from southern Kentucky to Lexington, as soon as the matter of a selling rate on the gas can be arranged. This project, abandoned last fall, is about to be revived. Sun Oil Co., Texas Co., and Oxford Oil Co. have been recent purchasers of pipe for Boling, Tex., where they have 50 well locations. Gibson Oil Corp., and Phillips Petroleum Co. are drilling 15 wells in Wheeler county, Tex., and have made arrangements for the pipe. By the end of April pipe makers will have more business than they can assimilate and deliveries will be extended. Miscellaneous pipe demand is growing better, orders for small sizes of standard full weight merchant pipe being on the increase and oil country jobber orders likewise are growing more numerous to build up stocks. Prices are firm. Mill operations average 85 to 90 per cent.

Boston, March 23.—French interests have been low on several recent round tonnage projects. Holyoke, Mass., opened bids March 19 on 6000 tons of 6 to 20-inch pipe. A French manufacturer was low and no award has been made. New bids close March 24 on 800 tons for Danvers, Mass., French makers being low on the first bids. Bids close March 25 on 3700 tons of 6 to 20-inch pipe for Quincy, Mass.

Chicago, March 23.—Bids will be opened this week on the largest cast iron pipe tonnage in three months. The most pronounced activity is in the moderate-size cities, requiring up to 16-inch pipe. With most makers bookings have been running slightly ahead of shipments the past week. Backlogs will average at least 90 days and on some sizes one maker is well sold through the year. The general market on cast iron pipe 6-inch and over continues $41 to $42, Birmingham, or $49.20 to $50.20, Chicago, subject to the desire of makers for attractive sizes. Four-inch pipe is quoted at $53.20 to $54.20, Chicago.

New York, March 23.—An award of 3000 tons of cast pipe for Saugerties, N. Y., features the local pipe market. Colombia close on 5300 tons here previously reported going to French makers.

Birmingham, Ala., March 22.—Lettings are numerous for cast iron pipe. Several producers in this district are adding materially to their unfilled tonnages. The quotations continue firm around $40 per ton for 6-inch and over.

CONTRACTS PLACED

6322 tons, 6 to 12-inch class B pipe for Los Angeles, Spec. 789-B, to United States Cast Iron Pipe & Foundry Co.

5300 tons, cast pipe, Barranquilla, Colombia, reported in last week's issue as going to French makers, has been awarded to the United States Cast Iron Pipe & Foundry Co.

3000 tons, mostly 6-inch pipe, Saugerties, N. Y., awarded the Warren Foundry & Pipe Co.

1300 tons, 6 to 12-inch pipe, Albany, N. Y., to B. Nicoll & Co., representing French makers.

1101 tons, 4-inch class B and C pipe for Los Angeles, Spec. 789-B, to American Cast Iron Pipe Co.

600 tons, board of local improvements, Chicago, to United States Cast Iron Pipe & Foundry Co.

594 tons, 16 to 18-inch De Lavaud pipe for Santa Barbara, to United States Cast Iron Pipe & Foundry Co.

500 tons, instead of 200 tons as previously reported, for Morristown, N. J., to B. Nicoll & Co., representing French makers.

434 tons, 4-inch class B pipe for Los Angeles,

Spec. 789-B, to W. K. Thompson who will furnish German pipe.
425 tons, Evanston, Ill., to James B. Clow & Sons.
408 tons, 20 and 30-inch class B pipe, Melrose avenue extension, Seattle, to B. Nicoll & Co. for French pipe.
400 tons, Warren, Mich., to James B. Clow & Sons.
400 tons, Lake Bluff, Ill., to James B. Clow & Sons.
375 tons, Martins Ferry, O., to United States Cast Iron Pipe & Foundry Co.
275 tons, Manitowoc, Wis., to James B. Clow & Sons.
250 tons, Little Chute, Wis., to United States Cast Iron Pipe & Foundry Co.
250 tons, Fort Wayne, Ind., to National Cast Iron Pipe Co.
221 tons, 4 to 12-inch class B pipe for Laguna Land & Water Co., Los Angeles, to Grinnel Co. of the Pacific, for Belgian material.
200 tons, Barrington, Ill., to United States Cast Iron Pipe & Foundry Co.
100 tons, 2 to 8-inch class B pipe, Compton, Calif., to unnamed interest.
100 tons, Kalamazoo, Mich., to Lynchburg Foundry Co.
100 tons, Manhattan Beach, Calif., 8 and 12-inch class B pipe, to B. Nicoll & Co. for French pipe.

CONTRACTS PENDING

6000 tons, 6 to 20-inch, Holyoke, Mass.; French interests low, no awards announced.
3700 tons, 6 to 20-inch, Quincy, Mass.; bids in March 25.
3500 tons, 6 to 24-inch pipe, White Plains, N. Y.; the Warren Foundry & Pipe Co. low bidders.
1700 tons, 24-inch pipe, Danvers, Mass.; bids in March 24.
766 tons, 6 to 12-inch class B pipe for Prosser, Wash.; bids in March 30.
275 tons of 6-inch pipe, 21 hydrants and 34 valves, Marshfield, Wis., bids close March 26.
250 tons, 6 to 12-inch, Beverly, Mass.; French interests low, no award announced.
166 tons, 6-inch class B pipe for Riverside, Calif.; bids being received.

Bolts, Nuts, Rivets

Buying Holds Well in Face of Usual Spring Slackening

NUT AND BOLT PRICES, PAGE 824

Chicago, March 23.—Specifications for bolts and nuts continue to ease off slightly and indicate that in April as usual the industry will experience a dip. A large proportion of first quarter contracts have been taken out and contracting for second quarter present no difficulties, chiefly because of no deviation from first quarter prices, 50, 10 and 10 off for large machine bolts. Automobile makers taking their material out of Chicago are specifying more heavily. Western bolt and nut works are maintaining production at 70 to 75 per cent. Small rivets range from 70 and 10 to 70 and 5 off, with structural rivets at 2.75c, Chicago.

Cleveland, March 23.—A slightly better demand for rivets is reported by makers in this district. Second quarter books were opened Monday at prices unchanged from those for the first quarter, 2.60c, base Pittsburgh, for structural rivets and 70 and 10 per cent off list for small rivets. Bolt and nut demand continues on a fairly even keel although not as briskly as some makers have anticipated, with prices firm.

Bars

Buying Continues But for Current Needs Only—Prices Holding Well

THOUGH bar users are covering only current requirements and are not buying on contract for second quarter to any extent, volume of bookings exceeds shipments and delivery again is being deferred. Most urgent needs can be cared for by mills. The situation is much better than a year ago as buying remains to be done by most important consumers.

BAR PRICES, PAGE 824

Chicago, March 23.—Specifications for soft steel bars outrun shipments by a fair margin but continue to represent current needs only. Backlogs are fairly heavy and delivery is more deferred than at any time since the turn of the year, but capacity is such that urgent requirements can be met. Automotive and parts interests in immediate Chicago territory are operating better. Farm implement makers have the heaviest schedule for this season in five years. Cold-drawn steel interests have been fair buyers. Competition of eastern makers in outlying territory is reported less severe. The general market in Chicago on soft steel bars is 2.10c.

Seasonal uses for rail steel make for continued good operations, one Chicago Heights mill being on double turn. Demand for rail steel for construction purposes is heavier and over 1000 tons of Illinois road work is in prospect. Bar iron demand is barely sufficient for single turn. Both grades of bars are unchanged at 2.00c, Chicago.

Boston, March 23.—Demand for steel bars holds active in New England despite some price softness appearing during the past week. Leading eastern mills hold firm at 2.00c, Pittsburgh, for second quarter, but some business is being lost to smaller mills at 1.95c, Pittsburgh, and in one case 1.90c, Pittsburgh.

Buffalo, March 23.—Second quarter bar specifications have improved materially within the past week and bookings have advanced. The 2.265c, Buffalo price, has been established with increasing firmness. Mill operation is about 80 per cent.

Philadelphia, March 23.—Specifications for steel bars are good and indications are most buyers will take out full first quarter tonnages. Not much contracting is being done for second quarter. One large mill has intimated that 2.10c, Pittsburgh, is the minimum price after April 1. The current price is firm at 2.00c, Pittsburgh.

Pittsburgh, March 23.—One or two merchant steel bar makers this week are starting a campaign for second quarter business at 2.00c. Some still claim to be getting 2.10c for small lots. One or two preferential customers of certain large makers here report ability still to obtain 1.80c or 1.90c on attractive lots such as 1000 tons of one size, but this is not general and is not accepted as market significance. Specifications have been coming in actively and shipments to cold finishers have been high, reflecting improved automotive buying. The condition this year is more encouraging than last since then all buying for a considerable period ahead had been done. This year there has been practically no buying ahead. Last year consumption fell off around this time and this year consumption appears to be steadily increasing.

Cleveland, March 23.—March tonnage in steel bars sent to the mills from this territory will show a substantial increase over either January or February. Despite the high production rate, users are feeling a little more pinched in certain sizes and show more anxiety for deliveries. At the same time, other sizes are promptly available. Automoble parts makers are ordering freely, reflecting the heavier operations among the builders. Prices are strong at 2.19c, Cleveland, or 2.00c, Pittsburgh. Less carload sales at 2.10c, Pittsburgh, are few. Contracting for second quarter is limited, buyers not being disposed to obligate themselves ahead.

Hoops and Bands

Orders Are Numerous and Full Price Being Obtained

HOOP PRICES, PAGE 824

Pittsburgh, March 23.—Hoop and band orders are numerous. This furnishes the hot-rolled flat makers with good backlogs and with specifications on first quarter contracts largely made and second quarter contracts being written, a splendid condition is assured. The price is firm at 2.50c.

Cold Finished Steel

Improvement Continues and Prices Are Firm on Spot Buying

Pittsburgh, March 23.—Improvement in cold-finished bars continue. Orders are growing in number and while most lots are small, diversified improvement is indicated. In many instances specifications are well in hand on first quarter tonnages, and second quarter contracts are fast being written at 2.50c. Operations average around 80 per cent.

Structural Shapes

Buying Continues Restricted to Small Lots But Inquiries Are Expanding—Fabricators' Competition Is Keen—Stocks Are Low

DESPITE constantly increasing inquiries, awards of structural shapes are limited. Small tonnage contracting is on a large scale, but heavier projects continue slow in materializing. Deliveries in the Philadelphia district are lengthening, and Pittsburgh mills are about to make a drive for heavier backlogs. New inquiries are featured by 10,000 tons for a 42-story office building in New York. A heavy aggregate tonnage is pending in that territory. Fabricators' stocks are low at Chicago, hand-to-mouth buying prevailing.

Prices are steady, most sellers being content to stabilize quotations on a 1.90c, Pittsburgh, equivalent. Plain material in the Chicago district is firm at 2.10c, Chicago.

STRUCTURAL SHAPE PRICES, PAGE 824

New York, March 23.—Structural trading this week again is restricted, although far from dull. Several fair-sized orders have been placed, including 1600 tons for a power house addition here. A leading pending project involves 10,000 tons for a 42-story office building on Fifth avenue. Shape prices are unchanged around 1.90c, Pittsburgh, on sizable tonnages.

Boston, March 23.—Recent contracts have been mostly under 100 tons. Prices hold steady at 1.90c, Pittsburgh, in the jobbing trade. Slight concessions against specifications have been made.

Philadelphia, March 23.—Due to larger demand, structural shape deliveries are lengthening. Consumers say they must specify from four to six weeks ahead to assure delivery. Recent firmness is more pronounced, with 1.85c to 2.00c Pittsburgh the full range and 1.90c the usual price.

Pittsburgh, March 23.—Numerous small jobs are active in the structural market. Larger work still is held in abeyance and some shops are about to inaugurate aggressive drives for business to collect backlogs. The mill price on plain material is unchanged at 1.90c to 2.00c, the latter applying on small orders. Some second quarter contracts are being written at the 1.90c level.

Cleveland, March 23.—Strikes of the laborers, painters and glaziers unions are hindering building activity, and the structural market reflects this dullness. Inquiries brought out last week were confined to 25 and 30-ton lots. Awards also were small. Plain material is quoted 1.90c Pittsburgh with some companies reporting some sales at 2.00c. Fabricated and delivered prices are spotty, smaller fabricators in this district competing keenly for all current business.

Chicago, March 23.—Specifications for structural material have been in excess of shipments the past week. Fabricators are operating with abnormally low stocks and orders are passed to the mills as soon as received. The leading interest is booked well through the second quarter. Competition for current business is as sharp as at any time since last fall. Plain material is quoted at 2.10c, Chicago.

Awards Compared

	Tons
Awards this week	23,603
Awards last week	22,615
Awards two weeks ago	55,933
Awards this week in 1925	63,452
Average weekly awards, Feb.	25,203
Average weekly awards, 1926	28,119
Total awards to date, 1925	444,200
Total awards to date, 1926	332,914

CONTRACTS PLACED

4758 tons, in the following six contracts:
Theater, Tremont and Jerome avenue, New York, to the George A. Just Co.
Savings bank, Flatbush and Duryea place, Brooklyn, N. Y., to the George A. Just Co.
Alterations, theater, Columbus circle, New York, to the George A. Just Co.
6-story addition to an office at 9-11 East Fortieth street, New York, to the Taylor-Fichter Steel Construction Co.
Parish house, St. Marks Methodist church, Beverly road and East Twenty-first street, Brooklyn, N. Y., to the Lehigh Structural Steel Co.
Loft, 247-52 West Thirty-fifth street, New York, to Post & McCord.

2500 tons, smelter for Phelps, Dodge & Co., Douglas, Ariz., to Kansas City Structural Steel Co.

2300 tons, building No. 5 sesquicentennial, Philadelphia, to the Fort Pitt Bridge Works.

1600 tons, East River power house addition for the New York Edison Co., New York, to the American Bridge Co.

1250 tons, stadium for University of Chicago, Chicago, to McClintic-Marshall Co. Holabird & Roche, 104 South Michigan avenue, Chicago, architects.

1100 tons, concentrator for United Verde Copper Co., Clarksdale, Ariz., to McClintic-Marshall Co.

1000 tons, George Washington hotel, Jacksonville, Fla., to an unnamed fabricator.

750 tons, work for Standard Oil Co. at Whiting, Ind., to unstated fabricator.

750 tons, Central of New Jersey railroad bridges, Perth Amboy, N. J., to the McClintic-Marshall Co.

600 tons, Beaver Falls hotel, Beaver Falls, Pa., to the Fort Pitt Bridge Works.

600 tons, Congress Square hotel, Portland, Me., to Lehigh Structural Co.

600 tons, Delaware river bridge, Philadelphia, to Belmont Iron Works.

560 tons, apartment, 68 Thayer street, New York, to the Alpha Iron Works.

500 tons, freight station for the Southern Pacific railroad, Houston, Tex., to the Houston Structural Steel Co.

500 tons, power house for the General Engineering & Management Corp. at Whittaney, N. J., placed, the contract reported going to the Pittsburgh Bridge & Iron Works.

450 tons, St. Marks hospital addition, 237 East Eleventh street, New York, to the Jones & Laughlin Steel Corp.

400 tons, two projects for the Public Service Corp., Newark, N. J., to the American Bridge Co.

350 tons, Manufacturers Trust Co. building, New York, to Taylor-Fichter Steel Construction Co.

305 tons, power house extension, South Boston, for Boston Elevated railway to New England Structural Co. General contractor, Dwight P. Robinson Co., Inc., Boston.

300 tons, new Veterans Bureau hospital at Fort Snelling, Minn., to Roger-Smith Co., general contractor Murch Bros. Construction Co., St. Louis.

300 tons, highway bridge over Cowlitz river for Long Bell Lumber Co., Longview, Wash., to Wallace Equipment Co.

300 tons, bins and other sand delivery equipment for the J. K. Davidson Co., New Kensington, Pa., to the Bollinger-Andrews Construction Co.

250 tons, addition to the Prudential building, Newark, N. J., through the Foundation Co., to the American Bridge Co.

250 tons, kiln and boiler house for Alpha Portland Cement Co., Ironton, O., to Worden-Allen Co.

200 tons, Sixth street viaduct, Racine, Wis., to Wisconsin Bridge & Iron Co.

170 tons, telephone building, Santa Monica, Calif., to McClintic-Marshall Co.

160 tons, high school, Walpole, Mass., to Providence Iron & Steel Co., Providence, R. I.

150 tons, headframe for Wisconsin Steel Co. at Mashawauk, Minn., to Lakeside Bridge & Steel Co.

130 tons, coal handling plant for Zenith Furnace Co., West Duluth, Minn., to Worden-Allen Co.

120 tons, plant for Owen Bucket Co., Cleveland, to Republic Structural Iron Works.

100 tons, office and stores building, 3400 Euclid avenue, Cleveland, to Republic Structural Iron Works.

100 tons, Monongahela bank, Monongahela City, Pa., to the John Eichleay Jr. Co.

100 tons, California building, San Bernardino, Calif., to McClintic-Marshall Co.

100 tons, bank, Richmond, Calif., to Herrick Iron Works.

CONTRACTS PENDING

10,000 tons, 42-story Heckscher office building, Fifth avenue, between Fifty-seventh and Fifty-eighth streets, New York, pound price bids being asked.

8000 tons, Bricken building, Broadway and Barclay, New York; specifications expected out in two weeks.

4500 tons, subway section 1, route 102, New York; Moranti & Raymond, 42 Broadway, low on general contract.

1500 tons, Ingraham office building, Miami, Fla.; pending.

1500 tons, building for the Pittsburgh Insurance Exchange Inc., Fourth avenue, Pittsburgh; bids about to be asked by Boyle & Robertson Co., general contractor.

1500 tons, General Forbes hotel addition, Pittsburgh; bids being compiled.

1500 tons, dam No. 51 Golconda, Ill.; bids opened by Federal engineers at Louisville, Ky., March 15; United Gas Improvement Co., Philadelphia, low bidder.

1200 tons, approximately, Beth Israel hos-

pital, Newark, N. J.; pending.
1100 tons, nurses home, Columbia-Presbyterian hospital, New York; pending.
500 tons, addition to No. 2 Rector street building, New York; bids asked; the Thompson-Starrett Co. general contractor.
500 tons, theater, Jacksonville, Fla.; bids asked.
500 tons, 12-story Rossman loft, 160 East Fifty-sixth street, New York; bids asked.
500 tons, power plant for the General Engineering & Management Corp. at Miami, Fla.; bids asked.
400 tons, apartment, Charlotte, N. C.; pending.
300 tons, Pacific Telephone Co. addition, Seattle; pending.
270 tons, American Soda Fountain building, Watertown, Mass.; bids in.
250 tons, public school, Ventor, N. J.; bids asked.
220 tons, shrine temple, Terre Haute, Ind.; pending.
219 tons, bridge, Tremont street, Boston; bids in.
200 tons, alterations to Marshall Field & Co., store building, Chicago; pending.
200 tons, high school, Nutley, N. J.; pending.
200 tons, Masonic home, Zenith, Wash.; pending.
200 tons, Masonic temple, Brooklyn, Cleveland; pending.
170 tons, addition to Foxboro hospital, Foxboro, Mass.; bids in.
125 tons, theater, Patchogue, Long Island, N. Y.; pending.
110 tons, galvanizing plant for Witt Cornice Co., Cincinnati; the Austin Co., engineer and builder.
100 tons, Pennsylvania railroad bridge across Seventeenth street, Altoona, Pa.; general contract awarded Walter Rae, Pittsburgh.
100 tons, boiler house, Pine Grove, Pa., for Phoenix Utility Co., 61 Broadway, New York; pending.

Structural Steel Sales Show Slight Gain

Washington, March 23.—Bookings of structural steel in February were estimated at 186,050 tons, compared with 179,950 tons in January and 176,900 tons in February, 1925, as based on returns to the department of commerce. In February 1926, 179 fabricators with 265.385 tons monthly capacity, reported 161,192 tons booked or 61 per cent of capacity. Shipments totaled 201,300 tons or 66 per cent of capacity. Following are further comparisons:

1925	Actual tonnage	Per cent of capacity	Computed tonnage	Shipments computed
Jan.	151,091	57	173,850	176,900
Feb.	155,609	58	176,900	186,050
March	183,286	69	210,450	222,650
April	204,936	76	231,800	231,800
May	183,823	68	207,400	231,800
June	229,130	86	262,300	284,850
July	217,834	81	247,050	250,100
Aug.	209,752	78	237,900	244,000
Sept.	216,428	80	244,000	240,950
Oct.	239,680	89	271,450	268,400
Nov.	191,170	71	216,550	225,700
Dec.	*200,498	75	228,750	244,000
Total (12 mos.)			2,708,400	2,757,200
1926				
Jan.	†159,313	59	179,950	210,450
Feb.	‡161,192	61	186,050	201,300

*Reported by 204 firms with a capacity of 268.220 tons.
†Reported by 194 firms with a capacity of 268.680 tons.
‡Reported by 179 companies with 265,385 tons capacity.

Prof. James Aston, A. M. Byers Co., and new head of the department of mining and metallurgy, Carnegie Institute of Technology, was the speaker at the regular monthly meeting of the Pittsburgh chapter of the American Society for Steel Treating March 4. He spoke on "The Trend of Development in the Wrought Iron Industry."

Concrete Bars

Buying Increasing But Awards Still Are Small—Foreign Bars Are Active

EXPANDING buying has added encouragement to the concrete bar market, but awards still are below seasonal expectations. A New England dealer bought 500 tons of European bars at 1.90c, Boston. More roadwork is beginning to appear, but a backward spring has curtailed widespread activity. Prices are steady on new billet and rail bar products.

REINFORCING BAR PRICES, PAGE 824

Chicago, March 23.—The reinforcing bar market appears to have broken loose from the inertia of the past month. Awards are more numerous and pending business has broadened considerably. More apartment house projects are developing, while industrial projects are fewer. Reinforcing bar warehouse stocks are only fair, following the paucity of business. Billet bars are quoted at 2.60c, Chicago, and rail steel at 2.00c.

Boston, March 23.—More interest is reported in foreign bars. A dealer closed on 500 tons of continental bars at 1.90c delivered Boston. Recent awards have been small. New work is encouraging.

Buffalo, March 23.—Inquiry indicates a good run of reinforcing bar business in the near future. Prices are unchanged, mill shipments being quoted at 2.265c and stock lots at 2.75c.

Pittsburgh, March 23.—Concrete bar projects involving large tonnages are coming up within the next two or three weeks but in the meantime all awards are in the 15 to 25-ton class. The mill price is unchanged at 2.00c.

Cincinnati, March 23.—Advent of milder weather has stimulated demand for reinforcing bars and while awards the past week involved mainly small tonnages in the aggregate they represented a satisfactory volume of bookings. Prices are holding firm.

Cleveland, March 23.—Activity in the local concrete bar market is hampered by labor union disturbances. Considerable work is being delayed by strikes of painters, laborers and glaziers. Billet bars are quoted 2.19c and 2.20c, Cleveland, higher prices having become nominal. Rail steel is steady at 1.80c to 1.90c, mill.

Awards Compared

	Tons
Awards this week	2,650
Awards last week	3,875
Awards two weeks ago	2,975
Awards this week in 1925	5,300
Average weekly awards, Feb.	4,109
Average weekly awards, 1926.	4,485
Total awards to date, 1925	80,237
Total awards to date, 1926	51,993

CONTRACTS PLACED

800 tons, new Veterans Bureau hospital at Fort Snelling, Minn., to Sheffield Iron & Steel Corp., general contractor Murch Bros. Construction Co., St. Louis.
500 tons, Indiana war memorial at Indianapolis, to Truscon Steel Co.
240 tons, addition to Crane Co., Chicago, to Calumet Steel Co.
200 tons, Norwegian-American hospital, Chicago, to Concrete Engineering Co.
150 tons, Security warehouse building, Brooklyn, N. Y., to Kalman Steel Co.
140 tons, Schmidt bottling house, Philadelphia, to Concrete Steel Co.; 120 tons not yet placed.
120 tons, building in Baltimore, to Kalman Steel Co.
100 tons, new plant, Boye & Emmes Machine Tool Co., Cincinnati, to Bourne-Fuller Co. The Austin Co. general contractor.
100 tons, Nottingham branch of the Ohio Bell Telephone Co., Cleveland, to Concrete Steel Co. through Crowell & Little Construction Co. general contractor.
100 tons, addition to Republic Metalware Co. plant, Buffalo, to unstated Buffalo fabricator.
100 tons, Congress Cigar Co. warehouse, Camden, N. J., to Davis Bros.
100 tons, Christopher school, Chicago, to Concrete Engineering Co.

CONTRACTS PENDING

500 tons, dam No. 5, Ohio river at Galconda, Ill.; United Gas Improvement Co., Philadelphia, low bidder.
400 tons, apartment at Lake Shore drive and Pearson street, Chicago; Jarvis Hunt, 30 North Michigan avenue, Chicago, architect.
400 to 500 tons, garage, Chester near Twelfth street, Cleveland; Crowell & Little Construction Co. general contractor.
335 tons, LaSalle street bridge, Chicago; general contract to Central Dredging Co., 307 North Michigan avenue, Chicago.
240 tons, Kahn department store, Philadelphia; pending.
200 tons, high school, Ashtabula, O.; bids in before April 1.
170 tons, addition to Roanoke building, Chicago; general contract to Dahl-Stedman Co., 11 South LaSalle street, Chicago.
165 tons, Erie avenue sewer, Philadelphia; pending.
150 tons, St. Joseph's college, Philadelphia; pending.
150 tons, Antone apartment, 17 East Ohio street, Chicago; Ralph C. Harris, 190 North State street, Chicago, architect.
140 tons, McCrory stores, Philadelphia; Hughes-Foulkrod Co. general contractor.
130 tons, apartment for Eitel Bros. at Cass and Delaware streets, Chicago; general contract to McLennan Construction Co., 307 North Michigan avenue, Chicago.
100 tons, school of pharmacy in Chicago for University of Illinois; Schmidt, Garden & Martin, 104 South Michigan avenue, Chicago, architects.
Tonnage unstated, hotel, Mansfield, O.; bids in before April 1.
Tonnage unstated, hotel at 5230 Sheridan road, Chicago, plans shortly by Thomas R. Bishop, 35 South Dearborn street, Chicago.
Tonnage unstated, stadium for Benjamin Bosse high school, Evansville, Ind. Joseph C. Llewellyn, 38 South Dearborn street, Chicago, architect.

Rails, Cars

Carbuying Eases Off—Western Mills Pushed for Rails—Accessories Active

AFTER several weeks of active car demand, interest has relapsed, orders for the past week totaling less than 500. Several fair inquiries still are pending. Western rail mills are pushed for deliveries. Chicago builders specified 30,000 tons last week. Track accessory buying continues in good volume. Locomotives are inactive.

RAILROAD TRACK MATERIAL PRICES, PAGE 824

Chicago, March 23.—Western carriers are pressing for delivery of rails and track fastenings, particularly the former, and rail mills here are operating at capacity. The Gary mill is turning out more than 15,000 tons weekly. Bookings of track fastenings include 6000 tons of tie plates and 3000 tons of angle bars. Wheel orders are unusually heavy.

Car builders are specifying steel heavily, approximately 30,000 tons last week, but this represents requirements for cars placed in January and February. No large car orders were booked last week and current inquiry is limited to 2000 for the Pennsylvania, 1000 each for the Northern Pacific, Western Maryland and Central of New Jersey, and 500 for the Burlington.

Boston, March 23.—Frog and switch sales for street railroads show improvement. Steam roads are out of the market temporarily for rails, fastenings and other materials. Boston & Maine railroad announces that it has not as yet covered its full 1926 rail requirements despite reports of a heavy purchase in Germany.

New York, March 23.—Southern railway is understood to be negotiating for additional cars and locomotives. Trading in rolling stock, is featureless. The largest car lists pending in this district are for Pennsylvania and Jersey Central railroads, previously noted.

Although reported officially as stated a fortnight ago that the Pennsylvania would purchase only 2000 freight cars, the number specified in the inquiry, reports persist that close to 6000 freight cars likely will be bought.

Pittsburgh, March 23.—Lack of light rail business from the bituminous coal producing territories has been made up by increased orders from the anthracite sections. All orders are small. The price is unchanged at $35 although some makers are trying to obtain $36 on the billet-rolled product. Track accessory demand is confined to small lots but prices are firm and unchanged.

Boston, March 23.—After refusing to give out any authoritative information concerning the purchase of German rails, the Boston & Maine railroad finally has authorized the statement that it does not deny a cabled report that the Krupp Works in Germany have received its order for 15,000 tons of rails and 5000 tons of track fastenings. That the tonnage purchased was as large as this previously was denied. The railroad company reports that this tonnage, granting that it is 15,000 tons, is only part of its 1926 rail requirements.

St. Louis, March 22.—The Missouri Kansas & Texas railroad has purchased 375,000 tie plates from the Tennessee Coal, Iron & Railroad Co. and the Illinois Steel Co. The Missouri Pacific Railroad is inquiring for 2000 kegs of spikes and 1000 tons of track bolts.

ORDERS PLACED

Bloedel-Donovan Lumber Mills, Bellingham, Wash., 12 additional steel logging cars, to Pacific Car & Foundry Co.

Southern railway, 500 box cars to its own shops as previously reported. This is in addition and not included in award of 1600 to Mt. Vernon Car Mfg. Co. as noted last week. This road also awarded 1000 underframes to the Virginia Bridge & Iron Co.

Colorado & Southern, 100 ballast cars, to the Rodger Ballast Car Co.

New York, Westchester & Boston, 10 motor passenger cars, to the Pressed Steel Car Co.

Richmond, Fredericksburg & Potomac, six express cars to the American Car & Foundry, and four coaches to Bethlehem Shipbuilding Co.

Cleveland, Cincinnati, Chicago & St. Louis, gasoline-electric combination mail and baggage car, to J. G. Brill Co.

Southern railway, 25 refrigerator cars, to own shops.

LOCOMOTIVE ORDERS PLACED

Pennsylvania, 200 locomotives, reported Baldwin Locomotive Works understood to get order although contract not actually placed.

Long Island railroad, seven electric switch engines, awarded the Altoona shops of the Pennsylvania railroad.

ORDERS PENDING

Western Maryland, 1000 box cars; inquiry withdrawn.

Reading, 50 passenger equipment cars; contemplated.

Central of New Jersey, 100 gondola cars, pending; this is in addition to the 1000 box cars reported last week.

East Broad Top Railroad & Coal Co., 25 narrow gage hopper cars; pending.

National Railways of Mexico, unstated number of coaches; pending.

Judge E. H. Gary and Charles M. Schwab, along with Henry Ford, John D. Rockefeller and Samuel Insull, are listed by commerce department seniors at the University of Illinois, Urbana, Ill., as the five greatest living business men. Andrew Carnegie is rated among the five greatest business men of all time, with Mr. Schwab in the second five.

Wire

Jobbers Slow to Take Tonnage But Manufacturers Are More Active—Buying Is Slack

ACCUMULATION of stocks by jobbers continues to be a feature and slack specifications against mill obligations indicates this position is justified. Mills are about two months behind in clearing their books of orders. Agricultural sections have suffered bad weather conditions that have delayed work and orders from this source have been light.

WIRE PRICES, PAGE 824

Chicago, March 23.—Manufacturing lines of wire and wire products still move faster than jobbing lines. Specifications from the automotive industry are being maintained. Railroads and car builders are fair buyers, with the latter improving. Neither jobbers nor mills have heavy stocks in anticipation of spring demand. Jobbers say weather and road conditions continue bad. Nail demand is relatively lower than that for wire. Western mills are operating at 60 to 65 per cent. Makers say that 2.55c, Chicago or western mill, governs for plain wire and 2.70c for wire nails.

Boston, March 23.—Wire prices hold firm and demand has improved slightly. March tonnage in the district is estimated ahead of March, 1925. Nails are dull at 2.65c, Pittsburgh.

Pittsburgh, March 23.—Despite disappointment general among wire products makers over the way business has failed to come up to expectations, prices remain strong. The bases, 2.50c on plain wire and 2.65c on wire nails, are being held in every direction. Operations average 65 to 70 per cent. Some makers feel confident that tonnage reserve on the books will be taken out by April 15. Since this was expected to be dissipated by Feb. 15, jobbers and other buyers are 30 to 60 days behind with their shipping instructions. Fencing business is rather meager.

Nonferrous Metals

Demand Continues Light But Shipments Still Are Heavy and Production Big—Prices React After Showing Some Strength

Prices of the Week, Cents a Pound

	Copper, Electro delivered	Copper, Lake delivered	Copper, Casting refinery	Spot Straits Tin, N. Y.	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Mar. 17	14.20	14.25	13.50	66.25	8.30	8.00	7.50	27.00	18.25	35.00
Mar. 18	14.25	14.30	13.50	65.25	8.35	8.00	7.50	27.00	18.25	35.00
Mar. 19	14.20	14.32½	13.50	65.00	8.35	8.05	7.50	27.00	19.50	35.00
Mar. 22	14.12½	14.30	13.50	65.25	8.35	8.00	7.50	27.00	20.25	35.00
Mar. 23	14.12½	14.25	13.45	65.00	8.35	8.00	7.42½	27.00	20.00	35.00

NEW YORK, March 23.—Metals have gone up in the past week but some of them have turned easy again. This applies especially to copper. Buying of most metals has been light but in company with a stronger lead market the buying of that metal has been more active and on some days a fair amount of copper business has been done. On some days the buying of tin has been big and on other days light. Shipments of all metals continue large and users, now more than before, do not go into the market until the last minute to replenish supplies. Production of all metals continues heavy, except for some interruption of tin smelting in Singapore.

Rolled products—Copper and brass products have been unchanged in price lately but lead and zinc sheets have been cut. Mills are running at high rates but in brass the operations are not quite so strong as early in the winter. Shipments from most kinds of rolling mills are more active than new orders.

Zinc—The price of prime western went up quickly about a week ago to 7.50c East St. Louis, mostly on activity by dealers. Users bought lightly and at the same time one or two smelters entered the market as buyers, while none of the smelters has offered freely. Output has been curtailed but still is large, while the London market remains too low for export of anything except high grade. A fairly strong ore market is a factor in sustaining slab prices.

Copper—The red metal sold up to 14.25c delivered Connecticut and 14.37½c Midwest a few days ago. Not much went that high but some producers assumed a firmer attitude after doing a fair amount of business up to 14.17½c or 14.20c. However, the firmness did not last long and after a little easiness and quietness, some producers were willing to sell at 14.12½c.

Tin—Supplies of this metal are in a tight position, not only for metal on hand here but in the Orient also. Meanwhile consumption continues big, though perhaps not so great in other lines as in tin plate. Spot has sold in small lots mostly above 65.00c for about two weeks, but lots large enough to make a real market have not been available for earlier than late March delivery and these have been fairly steady at 65.00c for several days. Future arrivals sell a little lower and future shipments from the Straits a little more than 2 cents down.

Lead—This metal has been decidedly stronger the past few days, with a premium developing in the East for early positions over the contract price of the leading interest. Buyers evidently held out to the last moment and then had to come on the run.

Aluminum—The light metal is steady with shipments going at a good rate and practically all users of new metal covered on contracts. Secondary metal is in a steady market.

Old metals—Dealers' buying prices are steady. Not much interest is being shown in offerings on the part of consumers although a fair tonnage is moving on old orders.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	19.12½
Copper, hot rolled	22.75
Zinc, ga. 9 to 23 (100-pound base)	11.50 to 11.75
Lead full sheets (cut ¼c more)	12.25 to 12.75
Aluminum, bright flat, up to 10 gage	37.50
SEAMLESS TUBES	
High brass	23.75
Copper	24.50
RODS	
High brass (round ⅝ to 2½-inch)	16.87½
Naval brass	19.62½
WIRE	
Copper	16.25
High brass	19.62½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	8.75
Chicago	9.50
Cleveland	9.00 to 9.25
HEAVY YELLOW BRASS	
New York	7.25
Chicago	8.25
Cleveland	6.50 to 6.75
ZINC	
New York	4.25
Cleveland	4.50 to 4.75
HEAVY COPPER AND WIRE	
New York	11.75
Chicago	11.50
Cleveland	10.75 to 11.00
RED BRASS BORINGS	
New York	8.25
YELLOW BRASS TUBING	
Cleveland	6.75 to 7.00
LIGHT COPPER	
New York	9.50
Chicago	9.75
Cleveland	9.50 to 9.75
LIGHT BRASS	
Chicago	7.50
Cleveland	6.00 to 6.25
ALUMINUM	
Clippings	21.50 to 22.00
Borings, Cleveland	13.00 to 13.50
Cast	18.00 to 19.00

Secondary Metals

Remelt aluminum No. 12	24.00 to 25.00
Brass ingot	12.00 to 12.25

Coke By-Products

Demand for Distillates Active—Prices Steady Except on Ammonia

New York, March 23.—Even balance in production and consumption in most coal tar products has stabilized prices. Perhaps the only weakness is to be found in sulphate of ammonia, for which spot demand is slack, reflecting the end of the fertilizer season. Prices are nominally unchanged at $2.60 to $2.70, port, for export and $2.60 to $2.70, delivered, for domestic consumption.

Demand for light oil distillates continues brisk, with 90 per cent benzol holding at 24 cents works, in tanks, and 29 cents in drums, and pure benzol at 23 cents works, in tanks and 28 cents in drums. Solvent naphtha and toluol are unchanged at 35 cents works, in tanks, and 40 cents in drums, and commercial xylol at 36 cents in tanks, and 41 cents in drums.

Trading in naphthalene is comprised chiefly of last-minute requirements of the drug trade for the cleaning season and in the main is rather slow.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.23	.....
90 per cent benzol	0.24	.....
Toluol	0.35	.....
Solvent naphtha	0.35	(nominal)
Commercial xylol	0.36	(nominal)
Phenol	0.22	0.22
Per Pound at Producers' Plants		
Naphthalene flakes	0.07	
Naphthalene balls	0.08	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.65	.....

At the regular monthly meeting of the Pittsburgh Foundrymen's association, to be held March 15 in the Fort Pitt hotel, Pittsburgh, W. J. Willis, vice president, and Sterling H. Bunnell, consulting engineer, American Bosshardt Furnace Corp., New York, will present a paper describing the high temperature steel furnace, giving temperatures of 3500 to 3800 degrees. The paper will be illustrated with lantern slides.

Coast Buying Is Better

Plates for Pipe Lines and Large Tonnages of Cast Pipe Make Good Foundation—Other Departments Picking Up

SAN FRANCISCO, March 20.—(*By Air Mail*)—Featuring the iron and steel markets on the Pacific Coast this week was the letting of 3600 tons of plates for a pipe line at Medford, Oreg., 1600 tons of plates for a pipe line at San Rafael, Calif., 2500 tons of shapes for a smelter at Douglas, Ariz., and 7850 tons of cast iron pipe for Los Angeles. Buying of material for stock purposes in most lines is not of heavy proportions at the moment but considerable new tonnage is being figured on, most of which will come up for figures within the next three weeks. Prices, generally, are firm and little shading is noted.

Pig Iron and Coke

Pig iron and coke buying is restricted to small lots for prompt delivery. Many consumers have sufficient stocks to carry them through the next 60 days, barring an increase in business. Little improvement is noted in the rate of operations among foundries. Indications, however, point to a decided turn soon as many new projects are about to be released for figures. Prices remain unchanged from those quoted last week.

Coast Pig Iron Prices

Columbia basic	$27.00 to 28.00
Columbia, No. 2 Fdry., San Francisco and Los Angeles	27.00 to 28.00
Anzan No. 1 (Chinese) 2.50 to 3.50 sil. Del. S. F.	25.50
Anzan No. 1 (Chinese) 2.50 to 3.50 sil. Del L. A.	26.00
*Dutch	24.00
*Indian iron	24.25
*Belgian	24.00
German	24.00
*English (2.75 to 3.75 sil.)	25.00 to 26.00

*C.I.F. duty paid.

Bars, Plates and Shapes

Reinforcing bar business is beginning to pick up but most business is in lots of from 20 to 60 tons. So far this year bookings have been considerably below expectations. Awards this week were confined entirely to lots of less than 100 tons. Prices on out-of-stock material are firm at the new levels.

Plate prices appear firm at 2.30c c.i.f., Coast ports, although it is entirely probable that 2.25c could be obtained on large lots carrying extras. Awards this week aggregated over 7000 tons and included 3600 tons for the Medford pipe line placed with the Beall Pipe & Tank Co., 1600 tons for the San Rafael pipe line, booked by the Western Pipe & Steel Co., and 1000 tons for a pipe line at Bend, Oreg., and 500 tons for a pipe line at The Dalles, Oreg., booked by the Beall Pipe & Tank Co. The biggest project before the trade at present calls for 12,800 tons for the San Diego pipe line, bids on which will be opened March 22.

Structural shape awards this week exceeded 3900 tons and included 2500 tons for a smelter at Douglas, Ariz., booked by the Kansas City Structural Steel Co., 1100 tons for a concentrator for the United Verde Copper Co. at Clarksdale, Ariz., 170 tons for a telephone building in Santa Monica and 100 tons for the California building at San Bernardino, Calif., all booked by the McClintic-Marshall Co. Pending business totals over 7000 tons. Prices are firm at 2.35c c.i.f. as a minimum.

Other Finished Material

During the past two weeks c.i.f. prices on pipe have become firm. For some time past a 61-per cent water freight rate has been quoted by several producers, but recently 62.75 cents has been maintained by all companies. Demand for oil country goods is quiet, due to the fact that production is being held to a minimum. Standard pipe is in fair demand, but the total volume booked has not been heavy.

The past week was active in the cast iron pipe market, over six awards being placed, involving over 9200 tons. Los Angeles awarded 7850 tons, Santa Barbara, Calif., 594 tons, Seattle 408 tons and Compton, Calif., 100 tons. B. Nicoll & Co. were low bidders on 3500 tons for Santa Monica. No decision has yet been reached and it is entirely possible that concrete pipe will be purchased. Pending tonnages aggregate over 29,000 tons.

Pig Iron Buyers Wait

(*Concluded from Page* 825)

Co., Columbus, O., bought 1500 tons of malleable iron from a Cleveland furnace interest for second quarter. The United States Cast Iron Pipe & Foundry Co., is reported to have contracted for 6000 tons of southern iron, part of which will be forwarded to the company's plant at Addyston, O. A leading seller sold 500 tons of northern iron to an Indiana melter. Northern iron ranges from $20.50 to $21, Ironton, and southern iron $21.50 to $23, Birmingham. The $20.50 quotation of northern iron applies to resale tonnages.

Chicago, March 23.—The deadlock on second quarter iron continues. The technical position of producers in holding the market at $23, Chicago furnace, for No. 2 foundry and malleable, is not strong in some respects but that of melters also presents weak spots. The melt is heavy and gives no indications of a decided decline, and the carryover will be light. Resale iron, chiefly of odd analysis, seems to have disappeared and $23 apparently is being quoted on all business. Per diem shipments in March are averaging the heaviest of the quarter and a producer believes that merchant iron shipments in the Chicago district will prove to be the largest for any quarter in history. A melter at Rockford, Ill., is inquiring for 300 tons of No. 2 foundry for April and May, while a Milwaukee interest is seeking 200 tons for the same delivery. The special irons are not in active demand but their quotations are firm.

St. Louis, March 23.—Demand for pig iron continues slow, although many of the leading melters are consuming heavily. Jobbing foundries' February business was approximately 18.2 per cent larger than during the corresponding month in 1925. A slowing down has been noted since March 1. Inquiries for pig iron are at a low ebb, and sales reported last week total about 6000 tons. The largest single transaction was the purchase by a central Illinois melter of 1500 tons of foundry iron for prompt shipment, from the St. Louis Coke & Iron Corp. Quotably prices are unchanged. A few lots of prompt southern iron brought $23, furnace. Alabama producers are asking $23 for spot shipment and $22 for deferred delivery. Chicago makers continue to quote $23, furnace but the iron can be had in almost any desired quantity on a basis of $21. The leading local producer is quoting $23.50 to $24, Granite City, but is understood to be meeting competition.

Birmingham, Ala., March 22.—Pig iron sales are fairly good and stocks at furnaces have been reduced considerably. Quotations are firm at $22, base, furnace. The explosion of No. 2 furnace of the Woodward Iron Co. last week diminishes the daily output of furnaces in this district by 350 tons.

New York, March 23.—Pig iron business is increasing. The total of sales in this territory last week was at least 15,000 tons, and about 10,000 tons additional was placed yesterday and today. One consumer accounted for about one-third the entire tonnage, buying into the third quarter, and contemplates buying more. The General Electric Co. is inquiring for 5000 tons. The Crane Co., Bridgeport, closed on a portion of its recent inquiry. A Connecticut consumer bought considerable malleable. The above total does not include all sales of foreign iron which amount to several thousand tons. Prices generally are unchanged.

Buys Foreign Iron Ore

Philadelphia, March 23.—An important eastern steelmaker last week bought 100,000 tons of Algerian iron ore and 50,000 tons of New Jersey ore, representing about one-fifth of this company's annual requirements. It now is negotiating for additional tonnage. Current prices are substantially the same as last year.

American Iron Nipple Mfg. Co., Brooklyn, N. Y., has increased capital from $10,000 to $70,000.

Large Purchases Made Abroad

Boston & Maine's Placements in Germany Amount to 20,000 Tons of Steel—Order for 500,000 Boxes of Tin Plate Rumored—5000 Tons of Pig Iron Shipped to Philadelphia—Rail Syndicate Formed

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, March 23.—(*By Radio*)—Reports of American purchases in the European markets are more general this week. According to an unconfirmed statement, an order for 500,000 boxes of tin plate has been placed in the British market for delivery to the United States. A message from Berlin confirms the report that the Boston & Maine railroad has purchased 15,000 tons of rails and 5000 tons of track fastenings from the Krupps. A shipment of 5000 tons of British pig iron to Philadelphia was made during the past week. The British pig iron market is easier; competition is keen. Conditions in the steel market are improving. Welsh interests have received substantial orders for railroad material from India, and South American sources. Delivery is specified for second quarter.

French and Belgian markets are disorganized due to depreciation of their currencies. German railroad producers have taken some attractive orders for Japan.

The organization of an international rail syndicate is announced here, minor details remaining to be worked out. The Skoda Steelworks is floating a £2,500,000 loan in London.

Strike Threat Slows British Steel Selling

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng. March 15.—(*European Staff Service*)—The threatened lockout in the engineering industry has spread discouragement in iron and steel circles. This is relatively more serious than the coal situation, since, while coal peace is assured at least until the end of April, the lockout, if it takes place, is due at the end of next week. It is understood the engineering unions outside the group of malcontents will try to avert this trouble.

Sterling $4.86

But the immediate effect of the threat is to discourage buying. The feeling of uncertainty shortens the contracting period in every department, and buyers and sellers are careful not to look beyond the end of next month.

Some brands of pig iron are slightly easier. The pressure has undoubtedly disappeared in the North of England and prompt iron can readily be obtained. The price of No. 3 G. M. B. is maintained at £3 10s ($17.01), possibly with scarcely the recent firmness. Hematite has steadied at £3 17s 6d ($18.83) but in this department also the market is inclined to be easy.

Northern statistics pan out badly for February in the matter of pig iron. The total shipped was only 14,680 tons, of which 4000 tons were sent to America, which headed the list of foreign buyers, with one exception taking twice the quantity of any other country. The drop of 4000 tons in exports compared with January is part-

(*Concluded on Page* 849)

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, March 22	*British* Gross Tons U. K. Ports			*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port		
Export Prices f. o. b. Ship at Port of Dispatch—By Cable										
PIG IRON		£	s d		Francs		Francs		£	s d
Foundry No. 3, Silicon 2.50-3.00	$17.01	3	10 0*	$13.90	395	$13.80	340	$17.01	3	10 0
Basic	16.28	3	7 0	14.26	405	13.80	340	15.07	3	2 0
Basic-bessemer	18.59	3	16 6†	13.90	395	13.20	325	17.01	3	10 0
Hematite, Phosphorus 0.02-0.05	20.41	4	4 0	46.02	455	.....	...	18.23	3	15 0
SEMIFINISHED STEEL										
Billets	$26.73	5	10 0	$21.30	605	$21.32	525	$24.30	5	0 0
Wire rods	43.74	9	0 0	27.28	775	28.01	690	27.95	5	15 0
FINISHED STEEL										
Standard rails	$35.24	7	5 0	$26.22	745	$26.39	650	$29.16	6	0 0
Merchant bars	1.49c	6	17 6	1.14c	710	1.12c	620	1.17c	5	6 0
Structural shapes	1.33c	6	2 6	1.06c	665	1.04c	575	1.07c	4	17 0
Plates, ship, bridge and tank	1.52c	7	0 0	1.19c	745	1.17c	650	1.20c	5	9 0
Sheets, black, 24 gage	2.22c	10	5 0	2.16c	1,350	2.12c	1,180	2.64c	12	0 0
Sheets, galvanized, 24 gage, corrugated	3.50c	16	2 6	3.20c	2,000	3.96c	2,200	3.63c	16	10 0
Bands and strips	2.17c	10	0 0	1.42c	890	1.33c	740	1.54c	7	0 0
Plain wire, base	2.39c	11	0 0	1.86c	1,160	1.44c	800	1.54c	7	0 0
Galvanized wire, base	3.04c	14	0 0	2.52c	1,575	1.89c	1,050	1.98c	9	0 0
Wire nails, base	3.15c	14	10 0	2.16c	1,350	1.53c	850	1.76c	8	0 0
Tin plate, base box 108 pounds	$ 4.74	0	19 6	.....	...	.....	...	$ 6.56	1	7 0
Domestic Prices at Works or Furnace—Last Reported										Marks
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$17.01	3	10 0	$14.33	407(2)	$13.60	335	$19.55		85
Basic pig iron	16.28	3	7 0	15.38	437(1)	12.99	320	20.24		88
Furnace coke	3.71	0	15 3	5.91	168	4.67	115	5.06		22
Billets	26.73	5	10 0	19.36	550	19.49	480	27.37		119
Standard rails	1.63c	7	10 0	1.08c	675	1.13c	630	1.48c		142
Merchant bars	1.57c	7	5 0	1.12c	700	1.06c	590	1.39c		133
Shapes	1.44c	6	12 6	1.02c	635	1.03c	570	1.42c		136
Plates, ship, bridge and tank	1.55c	7	2 6	1.25c	780	1.16c	645	1.57c		145
Sheets, black, 24 gage	2.33c	10	15 0	2.12c	1,325	1.94c	1,075	2.24c		215
Sheets, galvanized 24 gage, corrugated	3.50c	16	2 6	3.12c	1,950	4.05c	2,250	3.96c		380
Plain wire	2.39c	11	0 0	1.84c	1,150	1.44c	800	1.85c		177
Bands and Strips	2.28c	10	10 0	1.35c	845	1.38c	765	1.61c		154

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 3d ($3.71) f. o. b. Ferromanganese £15 5s 0d ($74.12) f. o. b. German ferromanganese £14 0s 0d ($68.04) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Machinery

Tool Builders Are Operating at a High Rate and Maintaining Deliveries—Sales Are Well Scattered but for Small Lots

CONDITIONS so far as machine tools and equipment are concerned vary widely according to location. The New England markets are quiet, while New York is enjoying good business with prospects for the best month in the year. Pittsburgh interests find sales only fair; Cleveland dealers report business closed in the last week as good. Both Cincinnati and Chicago districts are finding little activity. Manufacturers of tools are running well up to capacity with several in Cincinnati carrying the heaviest backlogs since the armistice. Deliveries are going forward promptly and prices are firm. Orders as a rule are for one to four machines but the buying is well scattered. Automobile manufacturers are operating at a high rate.

New York, March 23.—Tool demand continues good, sellers generally finding this month the best this year. Following closing of several sizable lists last week, trading has been limited to orders for one and two machines and is diversified. Connery & Co., Philadelphia, has closed on several machines, including a shaper to Joseph T. Ryerson & Son, which has also been awarded a large bending brake by Green Fuel Economizer Co., Beacon. N. Y. Green Fuel company also has bought a bending roll from Manning, Maxwell & Moore, Inc. This latter builder has also been awarded a journal turning lathe and a forging machine by the Chesapeake & Ohio; 36 x 36-inch crank planer by Missouri Pacific and a 36 x 14-foot lathe by Zuanah Acme & Pacific railroad. Other railroad buying includes a 58 x 16-foot rod miller by Central of Georgia, this business going to Niles-Bement-Pond Co. Brooklyn-Manhattan Transit Co., is letting construction contracts for its Coney Island repair shops for which equipment will be required.

Boston, March 23.—While the New England used tool market is decidedly in the doldrums at present, both new tool sales and inquiry show improvement and manufacturers are far more cheerful over prospects than they were two weeks ago. General Electric Co. has bought tools for its Pittsfield, Mass., and Lynn, Mass., plants during the week including a planer and a radial drill. Textile machine manufacturers report greater activity, and several attractive inquiries come from this source. A Massachusetts machine tool manufacturer bought several tools including a radial drill. Other tool manufacturers are in the market. A hardware manufacturer closed on a fairly long list of tools and another manufacturer of hardware specialties is in the market for tools for rehabilitating a foreign plant.

Pittsburgh, March 23.—Sales of tools this past week have been only fair with orders calling for single machines. A number of old propositions have reached the closing stage and many inquiries are becoming more active. Pennsylvania railroad has much equipment in abeyance, and Westinghouse Electric & Mfg. Co. still is considering two special items on its last list and is preparing to buy against second quarter requirements. Foundry equipment sales of late have shown improvement.

Cincinnati, March 23.—While orders for tools are showing a slight increase, nevertheless business is not up to the expectations. Sales for the most part involved single tools and in many instances specified earliest possible shipment. Cincinnati Planer Co. received an order for a 72-inch and another for a 30-inch planer for shipment to two manufacturers in New York. Railroad buying is of small consequence, but early action is expected on several inquiries. Boye & Emmes Machine Tool Co., Cincinnati, has bought a milling machine from Rockford Tool Co., and a vertical drill, cutter grinder and a planer from Willard Machine Tool Co. This equipment is for the company's new plant under construction. Formica Insulation Co., Cincinnati, is building a plant addition and will require machinery for its timing gear department. General conditions are slightly improved.

Chicago, March 23.—Standard lines of tools have been moving rather slowly the past week but special equipment has not been in so heavy demand for a number of weeks. Several southern Ohio makers of special and heavy tools have the best backlogs since the armistice. Used equipment has been less active in moving off floors, but trading has been in evidence and used equipment stocks are heavier. Deliveries on standard tools are easier. Prices tend toward stiffness. Miehle Printing Press Mfg. Co., has placed a few miscellaneous tools. International Harvester Co., has placed a drill. Western Electric Co., Chicago, which recently bought a 36-inch lathe and a radial drill, is now considering some special equipment, including automatic grinders. Santa Fe railroad displays revived interest in three frog and switch planers for its shops at Newton, Kans. The Milwaukee board of school directors is inquiring for a 16-inch x 8-foot geared head lathe. McClintic-Marshall Co. will shortly install eight heavy tools for handling structural material at its Kenwood and Morava works at Chicago. Pullman Car & Mfg. Corp. has ordered an I-beam slotter and table.

Cleveland, March 23.—Although business in this territory has been fair throughout the month, sales during the week have improved materially. Orders still consist of only one or two machines but all lines of industry are in the market for equipment. Other fields have more than made up for the contracted buying from the automobile industry. Manufacturers are operating at high capacity and are maintaining prompt deliveries. Prices are firm. Owen Bucket Co., Cleveland, has purchased an 8-foot bending roll from Niles-Bement-Pond Co. Pratt & Whitney Co. has taken orders for an automatic milling machine for the board of education, Kent, O.; a rotary surface grinder for Standard Tool Co., Cleveland, and a thread miller for Timken-Detroit Co., Detroit.

CRANE ORDERS PLACED

Two standard locomotive cranes of 20 or 25-ton capacity for Carnegie Steel Co., Pittsburgh, to Browning Crane Co.

Two 5-ton handpower cranes for Phoenix Utility Co., New York, for installation at Fort Lauderdale, Fla., and Trinidad, Tex., respectively, one going to American Crane Co. and other to Reading Chain & Block Corp.

Considerable miscellaneous conveying equipment for Gurney Heater Mfg. Co. for installation at South Framingham, Mass., principally to Shepard Electric Crane & Hoist Co.; runways and switches to Seneca Engineering Co.

Among single orders were: 20-ton used locomotive crane for William Ryder & Co., Buffalo, to Philip T. King; 50-ton electric overhead crane for installation in New York metropolitan district to Whiting Corp.; 3-ton handpower crane for B. Katchem Iron Works, Newark, N. J., to New Jersey Foundry & Machine Co.; 20-ton overhead crane for Jones & Laughlin Steel Corp., to Alliance Machine Co.; 20-ton electric crane for Texas Central Power Co., Victoria, Tex., to Whiting Corp.; 10-ton electric pillar crane for Delaware, Lackawanna & Western railroad, New York, to Whiting Corp.; 20-ton electric crane for Gulf Coast Power Co., Corpus Christi, Tex., to Whiting Corp.; 5-ton gantry combination bucket and magnet handling crane with 1½ yard bucket for Anaconda Copper Mining Co., New York, to Whiting Corp.; and 15-ton handpower crane for Celotex Co., New Orleans, to Whiting Corp.

CRANE ORDERS PENDING

21 cranes for McClintic-Marshall Co., Pittsburgh; action deferred until this week.

Two pile drivers for Southern railway; bids close shortly.

Conveying equipment for plant extension for Otis Elevator Co., Harrison, N. J.; tentatively figured.

10-ton handpower crane for power plant connection with Essex county hall of records, Newark, N. J.; bids asked.

One crane for Koppers Co. by-product coke oven installation at plant of Republic Iron & Steel Co., Youngstown, O.

Launch Nine Vessels, Lay Three Keels in One Day

Philadelphia, March 23.—Several records were broken in the shipbuilding industry Saturday March 20 at the shipyard of the Newport News Shipbuilding & Dry Dock Co., Newport News, Va. Nine hulls were launched. This comprises a new record. The Hog Island yard once launched a larger total vessel tonnage in one day but there were only seven hulls.

On the same day there was laid down at Newport News a keel for a 601-foot freight and passenger steamer for the Panama-Pacific service of the International Merchant Marine Corp. This is the largest keel ever laid down in America for a commercial ship. At the same time, the yard also laid the keels for two Clyde liners.

A third feature of interest is the fact that seven of the nine ships went into the water by the float method. They were built in ways which were constructed by the Newport News company especially for two battle cruisers for the United States navy. The orders for the cruisers were canceled so the ships launched Saturday were the first to be built in these ways. The ways have a depth of 1000 feet and extend out into the river. They have side-walls of concrete and the river water is kept out by steel coffer dams. Launching was accomplished by opening the gates in the coffer dams and allowing the water to rise up and float the hulls.

The Newport News company now has under contract approximately $22,000,000 worth of work. It is employing 6400 men, the largest force since the war during which period the maximum number of employes was around 10,000.

Sales and Output of Sheets Decline in February

Pittsburgh, March 24.—Sheet sales totaling 181,101 tons, as reported to the National Association of Sheet and Tin Plate Manufacturers, were at a lower ebb in February than at any time since July, 1924. For the latter month sales were 135,998 tons. Compared with January this year, February sales fell off 72,222 tons.

Production totaled 299,553 tons in February and was lower by 29,090 tons than in January. February marks the low point since last September when 295,810 tons were produced. Shipments fell off in February to 290,026 tons from January when 333,485 tons was shipped. This makes February the lowest shipping month in the past five. Comparisons for February and January follow:

	Net tons Feb., 1926	Per cent of capacity	Net tons Jan., 1926	Per cent of capacity
Total sales for....	181,101	61.0	253,323	74.8
Total production	299,553	100.9	328,643	104.4
Total shipments	290,026	97.6	333,485	105.9
Unfilled tonnage	*523,882	176.4	†609,203	193.5
Finished stock awaiting shipment	113,797	38.3	110,671	35.1
In stock unsold	51,648	17.4	55,295	17.6

*March 1. †Feb. 1.

The total number of hot mills in the United States is 711, having a capacity for January 1926 of approximately 420,800 net tons, and the percentage of the capacity to which the figures shown are related is 74.8.

February Auto Output Is Above Last Year

Washington, March 23—The department of commerce announces February production of motor vehicles as 334,527 passenger cars and 40,805 trucks, of which 318,632 passenger cars and 37,522 trucks were made in the United States, and 15,895 passenger cars and 3283 trucks were produced in Canada. The gain in total output over that for January was 19 per cent, while compared with February, 1925, there was a gain of 30 per cent. The following table shows production by months:

Passenger Cars

	Total 1923	Total 1924	Total 1925	Total 1926
Jan.	228,860	293,822	212,908	283,263
Feb.	260,320	343,444	252,785	*334,527
March	327,038	357,006	332,151	.....
April	351,622	346,355	391,802	.....
May	358,646	286,266	382,714	.....
June	343,985	225,034	364,806	.....
July	303,497	244,503	358,554	.....
Aug.	318,848	255,193	221,813	.....
Sept.	302,340	263,468	272,413	.....
Oct.	338,469	260,845	406,569	.....
Nov.	288,810	204,316	336,358	.....
Dec.	279,862	182,028	285,199	.....
Total	3,702,297	3,262,280	3,817,639	.....

Trucks

	1923 Total	1924 Total	1925 Total	1926 Total
Jan.	20,506	30,627	28,141	32,629
Feb.	23,283	32,756	34,410	*40,805
March	36,619	36,270	45,098	.....
April	39,641	37,766	47,822	.....
May	45,677	35,112	43,303	.....
June	42,453	28,884	38,054	.....
July	31,703	26,227	41,840	.....
Aug.	32,195	28,503	37,770	.....
Sept.	29,626	31,829	60,374	.....
Oct.	31,515	32,332	45,823	.....
Nov.	29,166	27,766	40,001	.....
Dec.	28,862	27,324	34,370	.....
Total	391,246	375,426	497,104	.....

*Estimated.

Railroad Orders Placed

Toronto, March 22.—Orders for billets, bars, etc., required for construction of locomotives and cars have made it necessary to operate a third open-hearth furnace at the plant of the Algoma Steel Corp., Sault Ste. Marie, Ont. The Canadian Pacific railway recently placed orders for rolling stock with car and locomotive builders. It is expected the corporation also will open a new rail mill in the near future.

C. G. Robbins Dies

Cleveland, March 23.—Clarence G. Robbins, 48, secretary and general manager, Cleveland Crane & Engineering Co., Cleveland, died at the Mt. Sinai hospital here at 11 a. m. today, from injuries received when his automobile was struck by an interurban car the night of March 22.

Explosion Wrecks Stack

Birmingham, Ala., March 23.—Official investigation into the disastrous accident, which occurred Saturday March 20, at the No. 2 stack of the Woodward Iron Co .is not yet completed. While preparation was being made to cast the furnace an explosion occurred blowing off the top rigging and causing the shell to topple over. The accident took a toll of 22 lives. The stack will have to be rebuilt in its entirety.

Boltmaker Builds Plant

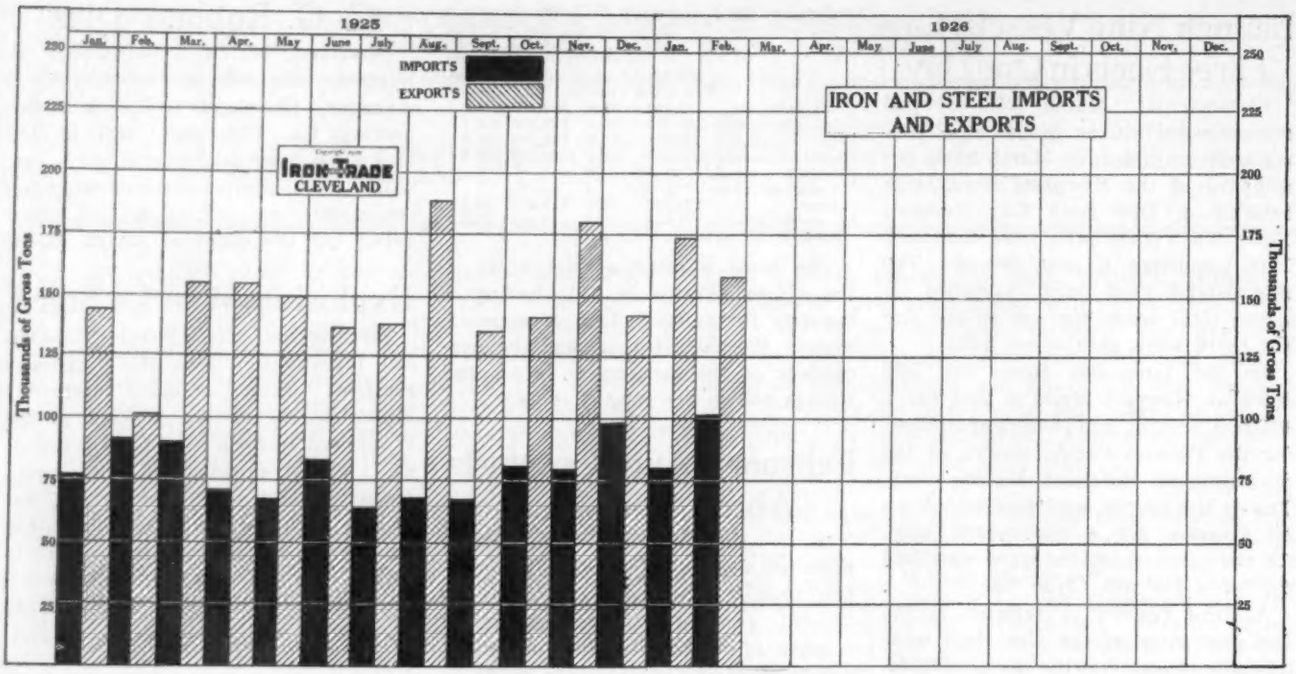
Cleveland, March 23.—Foster Bolt & Nut Mfg. Co. will begin operations about May 1 in its new bolt works at 6249-65 West Sixty-fifth street, Chicago, in the Chicago Clearing Industrial district. The Foster company is constructing two 1-story plants, having a combined floor space of 35,000 to 40,000 square feet. One plant is of steel and the other of brick. The Cleveland plant will be devoted to cold bolt production, the hot production equipment being moved to the Chicago works. Installation of cold bolt equipment is planned for the Chicago plant later. A. J. Boyle will be in charge of production at Chicago.

Operates New Bar Mill

Initial operation was started last week at the new 16-inch bar mill of the Penn Seaboard Steel Corp., New Castle, Del. The new unit is of the Belgian type and includes three stands of roughing and six stands of finishing rolls. The main drive motor has a capacity of 1000 horsepower. The mill is designed to produce steel bars ranging from 2 to 6½ inches. The daily output of the mill will range from 300 to 600 tons depending upon the size of the bars scheduled.

Japan Takes Less Sheets

New York, March 23.—Imports of black sheets by Japan in 1925, involving thicknesses below 0.7 millimeters, totaled 127,514 tons compared with about 300,000 tons in previous years. Iwai & Co., Ltd., Japanese importers with offices here, state the decrease is due to excessive stocks.



Imports Largest Since March, 1923

TOTALING 100,213 tons, imports of iron and steel products in February by the United States were the largest of any month since March, 1923, according to data just released by the iron and steel division of the department of commerce. Exports dropped from 174,585 tons in January to 157,187 tons in February.

IMPORTS AND EXPORTS

Gross Tons

	—1926—		—1925—	
	Imports	Exports	Imports	Exports
Jan.	79,067	174,585	77,105	141,777
Feb.	100,213	157,187	92,353	102,299
March	.....	.....	92,115	155,348
April	.....	.....	71,233	155,375
May	.....	.....	67,789	150,612
June	.....	.....	82,853	136,847
July	.....	.....	64,642	139,861
Aug.	.....	.....	68,489	188,465
Sept.	.....	.....	68,445	136,791
Oct.	.....	.....	80,045	141,817
Nov.	.....	.....	79,771	171,134
Dec.	.....	.....	98,400	142,209
Total	170,280	331,772	943,240	1,762,571

Although below January, February's exports were exceeded only twice in 1925, and were far above the 102,299 tons shipped in the same month last year.

Pig iron imports continue the dominating factor in foreign trade, totaling 59,122 tons in February, a large gain over 47,803 tons in January.

EXPORTS OF IRON AND STEEL

Gross tons

	February		Eight months ended February	
	1926	1925	1926	1925
Pig iron, not including ferro-alloys	1,478	1,413	2,891	21,071
Ferromanganese and spiegeleisen	132	838	970	2,151
Scrap	6,770	2,659	9,429	32,432
Ingots, blooms, billets, sheet bars and skelp	4,099	652	4,751	2,697
Iron bars	301	287	588	2,432
Steel bars	11,115	9,189	20,304	58,637
Alloy steel bars	243	155	398	1,575
Wire rods	1,516	1,156	2,672	11,473
Plates	10,277	6,305	16,582	43,756
Galvanized sheets	12,827	15,640	28,467	100,242
Black steel sheets	16,598	3,575	20,173	77,927
Black iron sheets	2,625	1,045	3,670	7,474
Hoops, bands and strip steel	3,422	1,971	5,393	14,099
Tin plate, terne plate, etc.	13,735	8,051	21,786	90,129
Structural shapes, plain	9,283	7,129	16,412	69,414
Structural, fabricated	7,834	1,572	9,406	13,265
Metal lath	296	65	361	1,539
Steel rails	13,121	2,453	98,407	118,911
Rail fastenings, switches, frogs, etc.	5,279	1,081	27,974	18,997
Boiler tubes and welded pipe	17,529	4,850	173,986	103,868
Malleable iron screw pipe fittings	904	538	1,442	6,858
Cast iron screw pipe fittings	470	275	745	4,753
Cast iron pressure pipe and fittings	704	758	1,462	6,961
Cast iron soil pipe and fittings	646	766	1,412	6,469
Plain wire	3,966	761	4,727	9,006
Barbed wire and woven wire fencing	4,951	4,201	8,152	58,423
Wire cloth and screening	207	88	295	885
Wire rope	375	406	781	2,943
Insulated wire and cable	22	34	56	473
Other wire and manufactures of	727	520	1,247	6,719
Wire nails	918	600	1,518	6,748
Nails other than wire	624	451	1,075	3,478
Tacks	46	**	106*	**
Horseshoes	106	71	177	568
Bolts, nuts, rivets and washers, except track	1,260	908	2,168	11,453
Car wheels and axles	1,318	1,109	12,070	14,243
Iron castings	460	921	7,006	5,629
Steel castings	729	482	2,585	3,215
Forgings	274	173	1,430	1,012
Total	157,187	102,299	1,252,056	1,055,878

IRON AND STEEL IMPORTS

Gross Tons

	February		Eight months ended February	
	1926	1925	1926	1925
Pig iron	59,122	47,803	318,804	184,180
Ferromanganese	4,934	10,342	41,615	45,126
Ferrosilicon	260	656	2,457	5,797
Scrap	12,117	14,502	64,625	65,801
Steel bars	4,472	2,864	41,697	5,399
Steel ingots, blooms, billets, etc.	3,184	4,906	14,936	22,931
Iron bars	904	816	4,854	3,487
Wire rods	912	780	5,668	3,518
Hoops, bands and scroll	957	*	6,694	*
Boiler and other plates	180	22	1,153	762
Sheets, skelp and saw plates	346	60	2,622	1,990
Tin plate	23	46	281	232
Structural shapes	5,246	4,008	45,258	33,103
Rails and splice bars	1,038	1,931	16,135	27,773
Cast iron pipe	3,444	.....	40,410	.....
Other pipe and tubes	1,227	†2,825	23,503	†27,253
Barbed wire	525	*	5,278	*
Round iron and steel wire	352	.....	2,775	.....
Steel telegraph and telephone wire	.....	‡194	133	‡5,229
Flat wire and strip steel	241	98	1,569	1,109
Wire rope and strand	108	.....	843	.....
Wire cloth and screening	14	*	246	*
Other wire	175	.....	744	.....
Nails, tacks and staples	204	.....	2,509	.....
Bolts, nuts, rivets, etc.	64	11	119	94
Castings	164	231	1,725	1,585
Total	100,213	92,095	646,553	435,369

*Not listed as such prior to Jan. 1, 1926.

†Formerly classified as tubular products, now segregated so as to show cast iron pipe and other pipe and tubes; latter includes welded pipe or jointed pipe, electrical conduits, ball bearing and other tubes. Cylindrical or tubular tanks and drums have been dropped, now being shown by value instead of quantity.

‡Listed as wire rope and insulated wire prior to Jan. 1, 1926. Hoops, bands and scroll includes cotton ties.

Other wire now includes covered or insulated wire, corset and dress steel and galvanized fencing wire.

Iron ore imports dropped from 202,332 tons in January to 160,172

tons in February, the largest shrinkage coming in shipments from Chile. This country supplied United States importers with 81,809 tons in February, compared with 119,300 tons in January.

Ferromanganese imports gained from 2631 tons in January to 4934 tons in February, United Kingdom supplying 3156 tons in the latter month. Manganese ore imports fell from 37,498 tons in January to 27,239 tons in February.

UNITED STATES EXPORTS BY COUNTRIES FOR 1926

	Gross Tons February	Two months ended February
Belgium	15	399
Bulgaria	1	1
Denmark and Faroe Islands	48	74
Finland	.....	3
France	1,971	4,251
Germany	314	326
Greece	44	132
Italy	2,063	2,967
Lithuania	.....	2,967
Netherlands	92	163
Norway	86	312
Poland and Danzig	17	17
Portugal	52	65
Rumania	565	1,019
Soviet Russia in Europe	6	2,704
Spain	20	81
Sweden	89	110
Switzerland	8	14
Turkey in Europe	32	81
United Kingdom	4,059	7,238
Canada	56,693	111,659
British Honduras	16	25
Costa Rica	118	368
Guatemala	542	4,511
Honduras	232	496
Nicaragua	933	1,272
Panama	836	2,044
Salvador	352	3,812
Mexico	10,519	16,810
Newfoundland	35	99
Bermuda	11	17
Barbados	15	20
Jamaica	103	239
Trinidad and Tobago	223	746
Other British West Indies	26	110
Cuba	10,478	17,669
Dominican Republic	230	717
Dutch West Indies	355	511
French West Indies	3	3
Haitian Republic	68	848
Virgin Islands of U.S.	16	224
Argentina	4,882	14,063
Bolivia	19	104
Brazil	3,441	6,179
Chile	2,404	10,015
Colombia	5,113	12,332
Ecuador	95	149
Falkland Islands	.....	1
British Guiana	10	13
Dutch Guiana	78	169
Peru	1,283	6,042
Uruguay	540	1,015
Venezuela	7,006	13,950
British India	2,756	8,647
British Malaya	761	2,011
Ceylon	4	5
China	2,793	5,818
Java and Madura	444	897
Other Dutch East Indies	818	4,309
Hongkong	166	209
Iraq	4	35
Japan, including Chosen	24,195	45,823
Kwangtung	2,882	2,892
Palestine	8	12
Philippine Islands	3,326	8,792
Siam	3	5
Australia	1,626	3,247
British Oceania	15	19
French Oceania	20	22
New Zealand	213	424
Belgian Congo	.....	1
British East Africa	2	2
British South Africa	486	1,471
British West Africa	1	8
Egypt	393	600
Other French Africa	.....	4
Italian Africa	1	1
Liberia	1	1
Morocco	11	60
Portuguese East Africa	103	240
Other Portuguese Africa	3	3
Total	157,187	331,801

DESTINATION OF STEEL EXPORTS FOR FEBRUARY, 1926

Gross Tons

Countries	Rails	Galvanized sheets	Plates not fabricated	Tin terne plate	Steel sheets black	Barbed wire	Steel bars	Steel scrap
Argentina	623	1,099	17	705	214	.....	.....	.....
Australia	.....	.....	117	.....	.....	.....	.....	.....
Brazil	.....	686	17	.....	.....	1,696	126	.....
British India	.....	1,650	.....	513	.....	.....	.....	.....
British Malaya	.....	676	.....	.....	.....	.....	.....	.....
British West Indies	.....	54	.....	.....	.....	.....	.....	.....
Canada	821	2,918	8,742	3,342	4,494	255	7,091	5,351
Chile	35	119	.....	187	.....	.....	.....	.....
China	.....	76	6	1,432	54	.....	519	217
Colombia	1,424	838	.....	.....	.....	375	137	.....
Cuba	3,891	796	173	121	.....	222	479	.....
Central America	.....	304	.....	.....	.....	312	277	.....
Egypt	.....	.....	.....	365	.....	.....	.....	.....
France	.....	.....	.....	.....	765	.....	.....	.....
Italy	.....	.....	.....	2,012	.....	.....	.....	.....
Japan	154	358	350	3,746	10,557	.....	.....	895
Mexico	2,397	658	233	228	236	401	95	221
Nicaragua	527	.....	.....	.....	.....	.....	.....	.....
Other Europe	.....	220	.....	.....	31	.....	.....	.....
Other countries	94	816	41	220	143	724	385	86
Other South America	.....	.....	.....	437	104	.....	124	.....
Peru	142	233	.....	.....	.....	177	.....	.....
Philippine Islands	.....	760	509	222	.....	430	586	.....
Kwangtung, leased territory	2,849	.....	.....	.....	.....	.....	.....	.....
United Kingdom	.....	.....	.....	195	.....	.....	1,296	.....
Uruguay	.....	344	.....	.....	.....	.....	.....	.....
Venezuela	164	222	.....	.....	.....	.....	.....	.....
Total	13,121	12,827	10,205	13,735	16,598	4,592	11,115	6,770

ORIGIN OF FERROMANGANESE IMPORTS

Gross Tons

Countries	February 1926	February 1925	Two months ended February 1926
France	18	19	42
Germany	84	500	163
Norway	468	1,340	468
United Kingdom	3,156	7,723	4,618
Canada	1,208	432	2,274
Chile	.....	33	.....
Netherlands	.....	40	.....
Hongkong	.....	255	.....
Totals	4,934	10,342	7,565

ORIGIN OF PIG IRON IMPORTS

Gross Tons

Countries	February 1926	February 1925	Two months ended February 1926
Belgium	1,230	1,065	2,160
France	7,691	98	12,364
Germany	16,869	9,598	25,264
Netherlands	6,670	9,944	13,843
Lithuania	.....	.....	1,530
United Kingdom	15,826	7,290	31,659
Canada	593	1,863	1,133
Sweden	.....	217	30
British India	9,990	17,628	19,319
British Malaya	253	.....	.....
China	.....	100	.....
Totals	59,122	47,803	101,545

ORIGIN OF MANGANESE ORE IMPORTS

Gross Tons

Countries	February 1926	February 1925	Two months ended February 1926
Germany	1	.....	17
Norway	21	.....	21
Soviet Russia	14,136	.....	34,925
United Kingdom	100	.....	177
Brazil	1,111	7,989	19,565
Chile	1,238	.....	1,238
India	632	.....	.....
British India	.....	1,426	2,532
Canada	.....	35	.....
British West Africa	.....	.....	5,630
Totals	27,239	9,450	64,737

ORIGIN OF IRON AND STEEL IMPORTS

Gross Tons

Countries	Steel bars	Steel ingots	Steel scrap	Cast iron pipe
Austria	.....	105	.....	.....
Belgium	2,292	808	.....	204
Canada	5	1	1,957	4
Chile	.....	.....	4	.....
Cuba	.....	.....	3,579	2
Czechoslovakia	19	28	.....	.....
France	992	1,867	.....	3,234
Germany	134	.....	.....	.....
Mexico	.....	.....	49	.....
Netherlands	105	.....	.....	.....
Norway	9	.....	.....	.....
Panama	.....	.....	6,494	.....
Sweden	774	333	34	.....
United Kingdom	142	42	.....	.....
Totals	4,472	3,184	12,117	3,444

ORIGIN OF IRON ORE IMPORTS

Gross Tons

	February 1926	February 1925	Eight months ended February 1926	Eight months ended February 1925
Germany	492	.....	.....	.....
Spain	4,700	21,295	68,377	80,086
Canada	380	149	5,352	3,357
Mexico	20,000	.....	.....	.....
Cuba	46,700	32,640	345,312	181,688
Chile	81,900	143,400	812,900	849,275
French Africa	6,000	20,400	84,675	146,889
Sweden	.....	6,918	105,744	248,309
Other countries	.....	1,040	38,428	17,653
Totals	160,172	226,472	1,490,280	1,527,257

IMPORTS OF IRON AND STEEL BY COUNTRIES

Gross Tons

	February	Two months ended February
Austria	114	135
Belgium	9,582	22,527
Czechoslovakia	47	592
Denmark and Faroe Is.	31	.....
France	14,152	21,873
Germany	19,172	31,273
Netherlands	9,400	18,389
Norway	492	516
Sweden	2,189	4,185
Switzerland	3	4
United Kingdom	20,186	38,447
Canada	4,465	9,852
Panama	6,494	.....
Mexico	51	85
Cuba	3,581	3,597
Chile	4	.....
British India	9,990	19,319
British Malaya	253	356
China	1	2
Java and Madura	1	.....
Japan including Chosen	5	6
Totals	100,213	179,280

Washington, March 23. — Spanish exports of iron ore in February amounted to 80,000 metric tons, against 97,000 tons in January, and 118,000 tons in February, 1925, states a cable to the department of commerce from Commercial Attache C. H. Cunningham, at Madrid. Employes of the Asturian mines and metallurgical plants were granted a wage increase of 4 per cent in January. Governmental concessions are reported to be improving the labor situation.

Iron Ore Prices Are Reaffirmed

Lake Superior Producers Open Books at Last Year's Figures—First Time Since 1915 That No Change Has Been Made From Year to Year—Strong Competition Prevails

SUBSTANTIAL sales of Lake Superior iron ore have been made in the open market for delivery this year, at the same prices in effect last season. The market was opened March 17 when one of the leading operators announced it had booked a large tonnage of standard ore on the 1926 price basis. It is understood the amount was about 200,000 tons.

This was not the tonnage for which the Ford Motor Co. had inquired, although the amounts involved in each instance is nearly the same. The Ford company had not closed up to March 23. Sellers expect action will be taken within a few days. They do not believe it will affect the price situation as established by the first sale.

Following the first transaction another sale was made in the open market involving around 100,000 tons at the same level of prices. Further negotiations now are in progress, and it is believed that most of the open market tonnage will be closed within ten days. The total will be between 500,000 tons and 1,000,000 tons.

Last year's prices have been accepted as the basis for prices applying on shipments in 1926 against long-term contracts. Some of the operators expect this year's total movement will amount to 55,000,000 to 60,000,000 tons. The independent's share of the total averages 55 per cent. The proportion of ore to be purchased in the open market has diminished in recent years.

While it now represents approximately 3 to 4 per cent of the season's business for the independents, as a group, the prices named establish the market governing the figures written in the long term contracts by others.

The announcement by one of the leading operators of the prices at which it is willing to sell ore for 1926 came as a disappointment to a majority of the operators. During 1925 they claimed that business was unprofitable; some of them said they were losing money, but had to keep going because of their contracts.

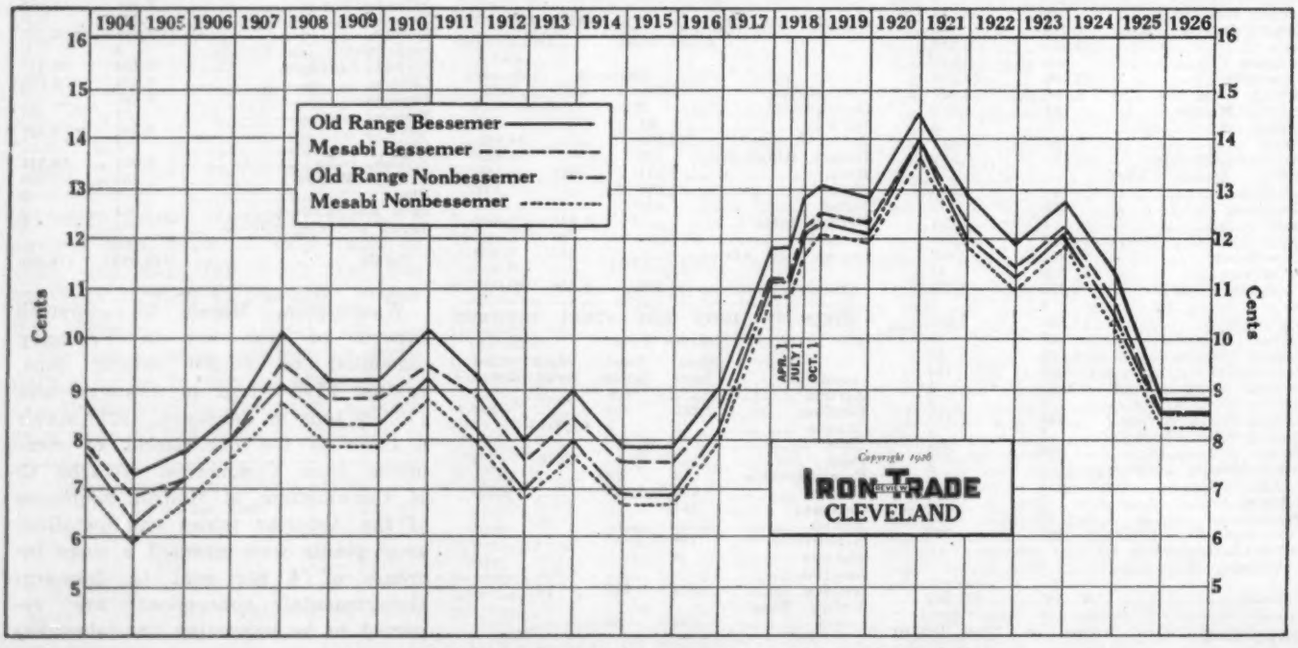
When the season of 1926 approached it was intimated by a few of them that an advance of $1 a ton would be necessary for them "to break even" in 1926. Then talk of an advance of 50 cents a ton was heard; and as recent as three weeks ago one of the largest operators indicated that it would quote prices 25 cents above those of 1925. When the first order was taken, at last year's prices, it is understood the seller was largely influenced by a desire to prevent the market going below the level of 1925.

Some of the smaller operators are preparing for a difficult season. They claim that "overdevelopment" of the Lake Superior ore industry is not entirely responsible for "low prices." Some statements have been made that the terms of minimum royalties are forcing operators to produce ore, regardless of market conditions. This also is discounted by them as a reason for the repetition of last year's quotations. While the vessel rates

Lake Superior Iron Ore Unit Values

	OLD RANGE		MESABI	
	Bessemer	Non-Bessemer	Bessemer	Non-Bessemer
	Cents	Cents	Cents	Cents
1926	8.835	8.544	8.544	8.252
1925	8.835	8.544	8.544	8.252
1924	11.364	10.680	10.909	10.388
1923	12.818	12.233	12.364	11.942
1922	11.909	11.262	11.454	10.971
1921	12.818	12.233	12.364	11.942
1920	14.636	14.175	14.182	13.883
1919	12.818	12.233	12.364	11.942
1918*				
Oct. 1	13.182	12.621	12.727	12.330
July 1	12.727	12.136	12.273	11.845
Apr. 1	11.909	11.262	11.454	10.971
1917	11.909	11.262	11.454	10.971
1916	9.181	8.349	8.727	8.058
1915	7.909	6.990	7.455	6.699
1914	7.909	6.990	7.455	6.699
1913	9.091	8.155	8.636	7.767
1912	7.909	6.990	7.455	6.690
1911	9.273	8.349	8.818	7.961
1910	10.182	9.320	9.727	8.932
1909	9.271	8.350	8.818	7.961
1908	9.271	8.350	8.818	7.961
1907	10.182	9.320	9.727	8.932
1906	8.553	8.144	8.113	7.736
1905	7.671	7.107	7.231	6.792
1904	7.231	6.344	6.790	5.871
1903	8.994	7.954	8.112	7.196
1902	8.553	7.481	6.793	6.344
1901	8.553	6.818	6.793	6.344
1900	10.59	8.541	8.836	8.247

*Figures for 1918 established by government.



FLUCTUATIONS IN UNIT VALUES OF LAKE SUPERIOR IRON ORE

have not been determined for 1926 it is not generally expected there will be a reduction below 1925, although there is a liberal offering of carrying capacity.

The prices that have been reaffirmed are as follows: Old range bessemer $4.55; Mesabi bessemer $4.40; old range nonbessemer $4.40; Mesabi nonbessemer $4.25; all prices per ton delivered lower lake port, for the base grades containing 51½ per cent iron natural. Prices were reduced 80 cents in 1924, and again reduced 50 cents in 1925. This year is the first time since 1915 when there has not been an advance or decline in the price of ore, from one season to another.

When prices of iron ore were established last year bessemer pig iron was $22, base, valley. Today it is quotable at $21. No. 2 foundry iron was $21, valley, while today it is $20.50. Basic iron was $21 a year ago; today $20.

The amount of ore on hand at lower lake docks and at furnaces March 1 exceeded by 1,469,242 tons the tonnage available March 1, 1925. The Lake Superior Iron Ore association reports the following:

	Tons
Ore consumed in January	5,042,792
Ore consumed in February	4,389,375
Decrease in February	653,417
Ore consumed in February, 1925	4,999,696
At furnaces March 1, 1926	21,592,532
On Lake Erie docks March 1, 1926	6,083,791
Total at furnaces and Lake Erie docks March 1, 1926	27,676,323
Total March 1, 1925	26,207,081

Cincinnati Metal Trades Elect New Officers

Cincinnati, March 23.—E. A. Muller, vice president and general manger, King Machine Tool Co., has been elected president of the Cincinnati branch, National Metal Trades association. Other officers are: David Jones, vice president, Lunkenheimer Co., elected vice president; James H. Mills, president, Smith & Mills Co., elected secretary; and John Christensen, president, Cincinnati Gear Co., treasurer. The following were chosen members of the executive committee: A. B. Breene, Cincinnati Ball Crank Co.; John Hargrave, Cincinnati Tool Co., and S. F. Kemper, American Oil Pump Co.

The election was held at the organization's annual meeting, March 5. Paul C. DeWolf, president of the national association was the principal speaker. Homer D. Sayre, commissioner of the national association, also spoke.

The March meeting of the Worcester, Mass., chapter of the American Society for Steel Treating was held at the Warren hotel, Worcester, March 4. J. M. Watson, metallurgical engineer, Hupp Motor Car Co., Detroit, spoke on the "Manufacture and Heat Treatment of Auto Parts."

Percentage of Advances and Declines in Lake Superior Iron Ore and in Pig Iron

Year	Date of ore buying	Mesabi nonbessemer	Advance or decline	Advance or decline per cent	Basic pig iron, Valley	Advance or decline	Advance or decline, per cent
1926	March 17, 1926	$4.25	.....	.....	$20.00	—$1.00	— 4.7
1925	April 4, 1925	4.25	—$0.50	—10.5	21.00	— 1.00	— 4.5
1924	April 4, 1924	4.75	— 0.80	—14.4	22.00	— 9.00	—29.0
1923	March 24, 1923	5.55	+ 0.50	+ 9.9	31.00	+ 6.00	+24.0
1922	June 9, 1922	5.05	— 0.50	— 9.0	25.00	+ 3.50	+16.2
1921	June 16, 1921	5.55	— 1.00	—15.2	21.50	—18.50	—46.2
1920	Feb. 2, 1920	6.55	+ 1.00	+18.0	40.00	+14.25	+51.4
1919	April 28, 1919	5.55	— .20	— 3.4	25.75	— 7.25	—21.9
*1918	Oct. 1, 1918	5.75	+ .25	+ 4.5	33.00	+ 1.00	+ 3.1
	July 1, 1918	5.50	+ .45	+ 8.9	32.00	.....	.....
	April 1, 1918	5.05	.....	.....	32.00	+ 7.00	+28.0
1917	Nov. 22, 1916	5.05	+ 1.50	+42.2	25.00	— 7.00	—38.8
1916	Dec. 7, 1915	3.55	+ .75	+26.7	18.00	+ 5.50	+44.0
1915	April 19, 1915	2.80	— .05	— 1.7	12.50	— .50	— 3.8
1914	May 1, 1914	2.85	— .55	—16.1	13.00	— 3.50	—21.2
1913	Nov. 19, 1912	3.40	+ .55	+19.2	16.50	+ 3.50	+19.2
1912	March 20, 1912	2.85	— .65	—18.5	13.00	— .75	— 5.4
1911	April 21, 1911	3.50	— .50	—12.5	13.75	— 3.50	—20.2
1910	Dec. 24, 1909	4.00	+ .50	+14.2	17.25	+ 3.00	+21.0
1909	May 10, 1909	3.50	.....	.....	14.25	— 1.25	— 8.0
1908	June 15, 1908	3.50	— .50	—12.5	15.50	— 6.50	—29.5

*Prices for 1918 established by the government.

Elect Indianapolis Metal Trades Officers

Indianapolis, March 23.—W. D. Hamerstadt, Rookwood Mfg. Co., has been re-elected president of the Indianapolis branch of the National Metal Trades association, according to results of the referendum vote announced today. U. G. Leedy, Leedy Mfg. Co., was elected vice president and Lucius M. Wainwright, Diamond Chain & Mfg. Co., treasurer. The executive committeemen for two years are Alfred W. Thompson, Fairbanks-Morse Co., O. B. Iles, International Machine Tool Co.; James Hooker, Sinker-Davis Co.; executive committeeman for one year, W. K. Swigert, Stutz Motor Car Co., all of Indianapolis. A. J. Allen is secretary of the branch, that will hold its annual meeting March 31.

Prices of Iron Ore and Pig Iron at Date of Ore Buying Movement, 1890 to 1926

Season	Date buying movement	Old range Bessemer	Mesabi Bessemer	Old range non-Bessemer	Mesabi non-Bessemer	Iron prices, Valley Bessemer	No. 2 Foundry
1926	March 17, 1926	$4.55	$4.40	$4.40	$4.25	$21.00	$20.50
1925	April 4, 1925	4.55	4.40	4.40	4.25	22.00	21.00
1924	March 24, 1924	5.65	5.40	4.90	4.75	23.00	22.00
1923	March 24, 1923	6.45	6.20	5.70	5.55	31.00	31.00
1922	June 9, 1922	5.95	5.70	5.20	5.05	25.00	24.00
1921	June 16, 1921	6.45	6.20	5.70	5.55	23.00	22.50
1920	Feb. 2, 1920	7.45	7.20	6.70	6.55	41.00	40.00
1919	April 28, 1919	6.45	6.20	5.70	5.55	27.95	26.75
*1918	Oct. 1, 1918	6.65	6.40	5.90	5.75	35.20	34.00
	July 1, 1918	6.40	6.15	5.65	5.50	35.20	33.00
	April 1, 1918	5.95	5.70	5.20	5.05	35.20	33.00
1917	Nov. 22, 1916	5.95	5.70	5.20	5.05	30.00	26.00
1916	Dec. 7, 1915	4.45	4.20	3.70	3.55	18.50	18.00
1915	April 19, 1915	3.75	3.45	3.00	2.80	13.60	12.75
1914	May 1, 1914	3.75	3.50	3.00	2.85	14.00	13.25
1913	Nov. 19, 1912	4.40	4.15	3.60	3.40	17.25	17.50
1912	March 20, 1912	3.75	3.50	3.00	2.85	14.25	13.25
1911	April 21, 1911	4.50	4.25	3.70	3.50	15.00	13.75
1910	Dec. 24, 1909	5.00	4.75	4.20	4.00	19.00	17.25
1909	May 10, 1909	4.50	4.25	3.70	3.50	14.75	14.25
1908	June 15, 1908	4.50	4.25	3.70	3.50	16.00	15.00
1907	Nov. 5, 1906	5.00	4.75	4.20	4.00	21.50	21.50
1906	Dec. 5, 1905	4.25	4.00	3.70	3.50	17.25	17.25
1905	Feb. 1, 1905	3.75	3.50	3.20	3.00	15.50	16.00
1904	April 15, 1904	3.25	3.00	2.75	2.50	13.35	13.15
1903	March 20, 1903	4.50	4.00	3.60	3.20	21.50	21.65
1902	Feb. 1, 1902	4.25	3.25	3.25	2.75	15.90	15.90
1901	April 15, 1901	4.25	3.25	3.00	2.75	16.15	14.40
1900	Dec. 15, 1899	5.50	4.50	4.25	4.00	24.15	22.15
1899	Feb. 1, 1899	3.00	2.40	2.15	2.00	10.30	9.75
1898	March 20, 1898	2.75	2.25	1.85	1.75	9.55	9.80
1897	May 20, 1897	2.60	2.25	2.15	1.90	8.35	8.40
1896	May 1, 1896	4.00	3.50	2.70	2.25	12.40	11.15
1895	April 1, 1895	2.90	2.19	2.25	1.95	9.40	9.40
1894	March 1, 1894	2.75	2.35	2.50	no sale	9.65	9.65
1893	March 15, 1893	3.85	3.00	3.20	no sale	12.65	12.15
1892	Jan. 31, 1892	4.50	no sale	3.65	no sale	15.00	13.65
1891	June 1, 1891	4.50	no sale	4.25	no sale	15.15	15.00
1890	Dec. 15, 1889	5.50	no sale	5.25	no sale	22.15	18.15

* Figures for 1918 established by the government.

Current Statistics of Industry

Steel Castings Bookings Drop in February

Washington, March 23.—Bookings of steel castings in February totaling 75,548 tons showed a slight drop from levels of January and December, but were far above the monthly average of 1925, reports to the department of commerce indicate. Production, computed for second month, totaled 72,789 tons, compared with 72,016 tons in January. Further comparisons of bookings and production follow:

BOOKINGS

	Total net ton	Per cent capacity	Railway specialties net tons	Miscellaneous net tons
1922 totals	812,741	69.6	404,682	408,059
1923 totals	894,780	74.6	386,939	507,841
1923 mo. av.	74,565	74.05	32,245	42,320
1924 totals	772,840	64.1	388,357	384,483
1924 mo. av.	64,403	64.1	32,363	32,040
1925 total	731,743	.....	295,525	436,218
1925 mo. av.	60,978	60.7	24,627	36,351
1925				
January	82,922	82.6	40,799	42,123
February	61,535	61.5	27,237	34,298
March	59,508	59.3	21,670	37,838
April	59,008	58.8	22,109	36,899
May	49,619	49.4	16,055	33,564
June	48,413	48.2	16,675	31,738
July	54,474	54.2	19,953	34,521
August	51,358	51.2	18,235	33,123
September	48,827	48.6	17,008	31,819
October	61,044	60.8	20,576	40,468
November	69,527	69.3	31,993	37,534
December	85,397	85.1	43,215	42,182
January, 1926	84,232	83.9	37,677	46,555
February	75,548	74.1	31,401	44,147

PRODUCTION

January,* 1926	72,016	70.6	26,370	45,646
February	72,789	71.4	31,249	41,540

*Revised.

CanadaBuysLocomotives

Washington, March 23.—Of the 189 locomotives exported from the United States in January, Canada took 100, purchasing 16 steam, 82 gasoline and two electric industrial engines. Japan purchased nine steam and two gasoline locomotives. Total shipments were 58 steam, 113 gasoline, 5 electric railway and 13 electric industrial locomotives.

Steel Barrel Output Up

Washington, March 23.—Steel barrel production in February totaled 522,486 pieces, compared with 468,722 in January, according to reports to the department of commerce from 31 manufacturers. Shipments totaled 518,104 compared with 469,432 in January. Reports of the Steel Barrel Manufacturers' institute show a total productive capacity for the month of 817,500 barrels, and operations at 46.9 per cent of this capacity. Further comparisons of production, shipments and unfilled orders follow:

	Production	Shipments	Unfilled orders for delivery within 30 days	Unfilled orders for delivery beyond 30 days
1925				
January	420,127	415,040	345,696	1,028,551
February	413,823	407,781	313,544	1,022,580
March	505,429	510,928	399,940	864,920
April	594,971	605,424	411,053	726,499
May	570,962	569,670	313,123	637,230
June	514,913	508,880	269,964	582,630
July	497,152	506,894	314,727	974,656
August	498,449	495,736	263,588	851,079
September	510,869	503,221	237,580	774,996
October	553,545	555,981	356,626	534,278
November	498,929	498,070	251,567	996,978
December	467,485	474,742	368,286	1,377,060
1926				
January	468,722	469,432	431,772	1,334,074
February	522,486	518,104	543,381	1,153,947

Babbitt Sales Show Gain

Washington, March 23.—Total apparent consumption of babbitt metal in January was 5,151,926 pounds, an increase over December at 4,878,806 pounds. Sales by manufacturers in January were 3,707,615 pounds and consumption by producers 1,444,311 pounds. Further comparisons of consumption and sales follow:

1925	Total apparent consumption	Sales by manufacturers	Consumption by producers
January	5,683,183	4,620,815	1,062,368
February	5,164,619	4,103,340	1,061,279
March	5,644,288	4,395,901	1,248,387
April	5,126,416	3,928,136	1,198,280
May	5,081,668	4,189,558	892,110
June	5,074,966	4,085,125	898,841
July	5,184,196	3,694,386	1,489,810
August	5,441,823	4,068,706	1,373,117
September	4,621,033	3,579,780	1,041,253
October	5,550,247	4,169,870	1,380,377
November	4,954,683	3,534,026	1,420,657
December	*4,878,806	*3,910,160	968,646
Totals	*62,405,928	*48,279,803	1,444,311
1926			
January	5,151,826	3,707,615	1,444,311

*Revised.

Truck Shipments Heavier

Washington, March 23.—Electric industrial truck and tractor shipments in February totaled 108 compared with 104 in January according to returns by eight leading manufacturers to the department of commerce. Exports increased from three to five. Further comparisons follow:

SHIPMENTS OF ELECTRIC INDUSTRIAL TRUCKS AND TRACTORS IN NUMBERS

1925	Tractors	Domestic All other types	Exports
Quarter ending March 31	42	251	41
Quarter ending June 30	49	277	50
Quarter ending Sept. 30	56	283	12
Quarter ending Dec. 31	39	293	24
1925 Total	186	1,104	127
January, 1926	18	86	3
February	15	93	5

Fabricated Plate Bookings Increase in February

Washington, March 23.—Bookings of fabricated steel plate in February, totaling 29,731 tons, showed a slight increase over January at 24,467 tons, according to reports from the department of commerce, based on returns from 36 manufacturers. Gasholders formed the only classification to show material increase. Further comparisons of bookings follow:

	Total	Oil storage tanks	Gas holders	Stacks and miscellaneous Blast furnaces	Stacks and miscellaneous
1923	539,043	296,128	44,576	9,815	141,359
1924	313,109	123,368	43,747	12,601	108,046
1925—					
Jan.	27,064	4,314	6,529	4,495	9,276
Feb.	20,805	3,321	4,059	289	7,763
March	22,502	2,908	3,635	651	8,158
April	22,430	6,547	1,460	691	9,351
May	27,684	8,503	2,118	404	10,141
June	34,402	16,327	2,192	373	11,349
July	29,272	16,327	2,284	373	11,349
Aug.	29,261	7,500	3,671	1,240	11,826
Sept.	23,983	8,458	1,510	425	10,600
Oct.	28,338	8,076	1,432	2,500	12,621
Nov.	28,557	7,492	4,559	581	9,491
Dec.	31,585	7,714	3,172	407	14,776
Totals	325,883	87,541	34,588	12,658	129,511
1926					
January	24,467	8,025	2,286	1,720	9,179
February	29,731	7,122	4,068	806	9,984

Tonnage of Steel Shipped By Rivers Gain

Pittsburgh, March 23.—Total products transported over the Allegheny river in February was 81,315 tons, compared with 24,330 tons in January. Monongahela river carried 1,638,476 tons, including 1,469,004 tons of coal and 33,465 tons of coke, as against 1,487,357 tons in January. Ohio river tonnage for the two months, February and January respectively, was 273,207 tons, and 155,339 tons. February witnessed an increase in the tonnage of iron and steel products transported over the three rivers, as is indicated by the following table:

	Allegheny river	Monongahela river	Ohio river
February	250	23,577	20,223
January, 1926	30	16,535	16,700
December	610	20,506	37,423
November	530	25,800	49,041
October	15	22,200	25,260
September	3,560	31,430	22,987
August	.....	29,010	42,004
July	.....	23,960	35,835
June	132	30,000	27,791
May	735	32,479	42,466
April	797	23,350	18,375
March	200	22,328	27,000
February	900	19,350	19,837
January, 1925	.....	23,804	17,825
Totals, 1923	1,064	291,689	190,336
Totals, 1924	56,720	266,074	216,138
Totals, 1925	7,479	304,217	365,844
Total, 1926 to date	280	40,112	36,923

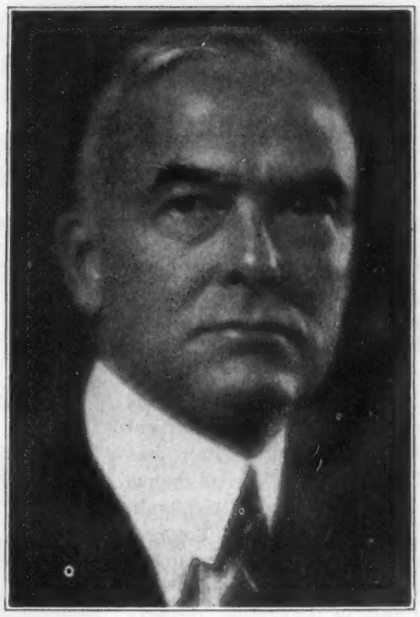
Industrial Men in the Day's News

John T. Harrington, New President of Trumbull Steel Co.

CHOSEN from the legal profession, as was Judge Gary, he now heads one of the important steelmaking interests in the Mahoning Valley district.

HE IS known as a fighting lawyer of great tenacity. On his first case, in 1896, he took off his coat and followed rhetorical with physical defeat of the opposing counsel.

HIS election is another indication of the modern trend in industry to recognize as executives, men of administrative and general business ability.



MUST the head of a great engineering or industrial interest possess highly technical knowledge and experience to be fitted properly for executive capacities? This question has been a football of controversy many times, and while it is undoubtedly true that most steel leaders were operating men before gaining the top, there are notable exceptions. Elbert H. Gary was an obscure county judge in Du Page county, Illinois, before entering the iron and steel industry. Another exception is John T. Harrington, who was also elevated from a legal capacity to become the new president of Trumbull Steel Co., Warren, O.

Prior to his ascendancy, Mr. Harrington had been a prominent factor in the unraveling of that financial tangle which hinged about the resignation of Jonathan Warner, former president of the company, last fall. Philip Wick of Youngstown, O., had been appointed president pro tem, the 4-month period of his regime terminating Dec. 16 when the board of directors elected Mr. Harrington to administer Trumbull affairs, a decision unanimously approved at the more recent annual meeting of stockholders. It may be considered by their choice that the directors did not believe intimate knowledge of iron and steel methods to be the paramount consideration involved. In Mr. Harrington's own words:

"Lack of technical knowledge is no handicap to the president of a large steel company. Operation of a plant like Trumbull is a technical job; but the presidency involves commercial and business instinct and the ability to keep an entire organization on its toes all the time. A good steel operator who is at the same time an executive with business ability is seldom found. There are a few, and they are at the head of the largest steel interests in the United States."

Mr. Harrington is not a steel operating man. He is a successful attorney, and is known as a fighting one with bulldog tenacity and iron determination. Admitted to the Ohio bar in 1896, he began his legal practice in Ashtabula county. It is told of his fighting ability that on his initial case in Jefferson, O., he took off his coat after the first day of the trial and "licked the counsel of the other side to a fare-you-well." He won the fist fight and the verdict.

Born in Rock Creek, O., May 22, 1873, he obtained his early education at New Lyme academy, New Lyme, O. In 1894 he received his A. B. from Oberlin college, and immediately entered the law school of the University of Michigan, graduating as a bachelor of law in 1896. He was admitted to the Ohio state bar in that same year and subsequently received authority to plead before the United States district court, circuit court of appeals and supreme court.

In 1900 Mr. Harrington went to Youngstown, O., and there entered into legal connections with which he has been associated for 25 years. The law firm he joined and afterward headed was known then as King & McVey, Through many titular changes—Arrel, McVey & Robinson; Arrel, McVey & Taylor; Arrel, McVey, Rowland & Harrington; Arrel, Wilson & Harrington; Arrel, Wilson

Harrington & DeFord, and Harrington, DeFord, Heim & Osborne—the firm became, in 1920, Harrington, DeFord, Heim & Huxley and, more recently, Harrington, DeFord, Huxley & Smith. Associated with Mr. Harrington in this concern were Union C. DeFord, Jared P. Huxley and Charles F. Smith, all partners in a legal house which in 1923 was general counsel for many large corporate interests, including the Trumbull Steel Co., Youngstown Steel Car Co., Falcon Steel Co., Falcon Tin Plate Co., Ohio Leather Co., Mahoning National bank, Wilkoff Co., General Fireproofing Co., Republic Rubber Co., Pennsylvania-Ohio Power & Light Co., Republic Railway & Light Co., and the Ohio River Edison Co. Of the latter three interests he is also president.

One of Mr. Harrington's close friends, when asked to name the chief hobby of the new Trumbull executive, replied succinctly: "Work." That this statement may not be an exaggeration is attested by the fact that Mr. Harrington severed none of his previous industrial connections.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

JOHN B. SHAUB, formerly manager of engineering production, Wellman-Seaver-Morgan Co., Cleveland, has been appointed general superintendent in charge of works. Mr. Shaub, a graduate of the Williamson School of Mechanical Trades, Delaware county, Pa., has been identified with the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. and the William Tod Co., Youngstown, O. With the Wellman company he has served as draftsman, checker, chief draftsman of hydraulic department and engineer in charge of marine department. In 1918 he became superintendent of the former Akron works, but was transferred to Cleveland as assistant sales manager in May, 1924. He then was made engineer in charge of the seamless tube mill machinery department and, Jan. 18, 1926, was made head of engineering production.

Clarence E. Guffin succeeds Mr. Shaub as manager of engineering production.

* * *

Victor Gottsman, formerly with Motch & Merryweather Machinery Co., at Detroit, has become identified with the Wolverine Machinery Co., there.

* * *

Herbert A. Davies, manager of the Memphis office, Virginia Bridge & Iron Co., has become manager of the company's Birmingham, Ala., plant.

* * *

K. H. Crumrine, formerly sales engineer, Cincinnati Shaper Co., Cincinnati, has joined the National Acme Co., Cleveland.

* * *

Sir Esme Howard, British ambassador to the United States, was escorted through the Gary works of the Illinois Steel Co., March 18, by company officials, including E. J. Buffington, president, T. W. Robinson, vice president and W. P. Gleason, works manager.

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H. G. Bacheller, vice president, Ludlum Steel Co., Watervliet, N. Y., sailed March 11 for the Mediterranean on the steamer DUILIO.

JOHN B. SHAUB

* * *

Whiteford R. Cole, former president, Napier Iron Works, Nashville, Tenn., has been elected president, Nashville, Chattanooga & St. Louis railroad, succeeding the late W. L. Mapother. Mr. Cole also will direct the Louisville & Nashville road, a subsidiary of the tri-city line.

* * *

Thorne L. Wheeler of Arthur D. Little Inc., Cambridge, Mass., engineer, has been appointed by Gen. Amos A. Fries as one of the government consultants for the chemical warfare service.

* * *

Lawrence E. Buzard formerly assistant sales manager has been appointed general sales manager, Fate-Root-Heath Co., manufacturer of gasoline locomotives, Plymouth, O., succeeding H. R. Sykes, resigned.

* * *

William Sullivan, Detroit, has been elected president of the Michigan Sheet Metal and Roofing Contractors' association. Other officers elected are: Henry Rhodes, vice president, and A. F. Martin, treasurer.

* * *

John V. Calhoun, formerly with Combustion Engineering Corp., New York, has become sales manager for Harold E. Trent, Philadelphia, manufacturer of electrical heating and control appliances.

* * *

W. B. Lewis, for the past two years manager, Southern Hardwood Traffic association at Cincinnati, has resigned to become traffic manager, Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.

* * *

William J. Clucas, formerly western sales manager, Lancaster Steel Products Corp., Detroit, effective April 1, will become identified with the Columbia Steel & Shafting Co., Pittsburgh, as special sales representative, at Detroit.

* * *

Milton H. Pettit has been elected vice president and general manager Simmons Co., Kenosha, Wis., steel manufacturers, with offices in New York. For many years Mr. Pettit

associated with the J. I. Case Threshing Machine Co., resigning to take charge of Simmons company production. Later he was made vice president in charge of all works.

William E. Lindblom, general manager, Kenosha works, has been promoted to general works manager at New York. He is succeeded at Kenosha by D. C. Travis, formerly superintendent of production.

* * *

C. L. Bailey has succeeded his father, the late C. L. Bailey, as manager of the Toronto branch William Jessop & Sons, Ltd., of Sheffield, England. Mr. Bailey is at present visiting the Sheffield works.

* * *

E. O. Shreve, since 1918, manager of General Electric Co., at San Francisco, has been named manager of the industrial department at Schenectady, N. Y., succeeding the late A. R. Bush. Mr. Shreve was born in Mapleton, Ia., Oct. 31, 1881, and after graduation in engineering from the Iowa State college in 1904, became a student engineer at the Schenectady works. In 1906 he went to San Francisco as supply salesman, became assistant manager there in 1917 and was promoted to manager a year later.

* * *

Frank D. Hoerle, formerly resident manager, Hickman Williams & Co., New York, has resigned to join the sales force of E. Arthur Tutein Inc., that city. Mr. Hoerle formerly was with the Cambria Steel Co., Bethlehem, Pa., and assistant general manager of sales, Donner Steel Co., Buffalo, until joining the Hickman Williams organization six years ago.

* * *

F. S. Markert, formerly with the Belleville Enameling & Stamping Co., Belleville, Ill., has joined the engineering staff of the Ferro Enamel Supply Co., Cleveland. Mr. Markert is a graduate of the University of Illinois.

E. O. MacFadon has been transferred from Cleveland as representative in the St. Louis district.

Obituaries

W. W. SHILLING, president, Sharon Foundry Co., Sharon, Pa., and the Sharon Railway Co., died in a hospital there March 21, aged 69. Mr. Shilling was born Oct. 24, 1856, at Wheatland, Pa., and obtained his education at the Edinboro Normal school, Edinboro, Pa., Eastman college, Poughkeepsie, N. Y., and Allegheny college, Meadville, Pa. Admitted to the Pennsylvania state bar in 1882, he practiced law in Sharon, Pa., for eight years before being elected president of the Sharon Foundry Co. in 1905. With this interest he was actively engaged until his death, giving over his legal practice 30 years ago.

* * *

Robert Patterson, founder of the Industrial Iron Works, Ludington, Mich., the first boiler shop in that city, died recently at the age of 88.

* * *

Howard Mussey, 37, superintendent of No. 2 furnace of the Woodward Iron Co., Birmingham, Ala., was among those killed March 20 in the explosion of the furnace.

* * *

Carl P. Engel, aged 31, assistant traffic manager, McKinney Steel Co., Cleveland, died March 15. Mr. Engel had been with the McKinney company 11 years and was widely known among railway employes. He was also a member of the Traffic club.

* * *

Victor de Ysasi, who sold Spanish iron ores here for 20 years, died recently at Malaga, Spain. Mr. de Ysasi was associated with Sota & Aznar until retirement early in January. He was planning to spend his last days in Spain, and died soon after reaching there.

* * *

Thomas Hampton, 56, vice president and general manager Canadian branch of Edgar Allen & Co., Ltd., Sheffield, England, died recently at his home in Montreal. Mr. Hampton was born in England and began his career with the firm now known as the British Steel Products Co., Sheffield, as a practical steel man and chemist. He was a member of the Engineers' club, Montreal, and the British Manufacturers' association.

* * *

Emmett J. Bondurant, 57, president, Georgia Plow & Foundry Co., Athens, Ga., died March 16 following a brief illness. Mr. Bondurant was born in Augusta, Ga., 1869, and in 1888 graduated from the University of Georgia. He remained in Athens and built up the Plow & Foundry company, and was a former trustee of the University of Georgia and of the State Normal Training school, Athens.

Societies News

TWO sessions on machine shop practice have been scheduled for the New England regional meeting of the American Society of Mechanical Engineers, to be held in Providence, R. I., May 3-6. The first of these sessions will take place Tuesday morning, May 4, on the subject of small parts manufacture, the following papers being listed: "Development of Tap Drill Sizes," by A. C. Danekind; "The Specification and Control of Mechanical Springs," by J. K. Wood, and "Influence of Design on Production," by Earle Buckingham. At the Wednesday morning session the following papers are to be presented: "New England Conditions Affecting the Machine Tool Industries," by E. C. Mayo; "Rotary Swaging," by J. H. Connolly, and "Cold Drawn Steel," by F. W. Krebs.

* * *

Eastern Shippers Will Meet

The spring meeting of the New England Shippers' advisory board will be held Wednesday, April 28, at the Copley Plaza hotel, Boston. This session is expected to develop an index of transportation conditions in New England over the balance of the year.

* * *

International Body To Meet

Leading scientists and engineers of America and Europe will attend a 10-day convention of the International Electrotechnical commission, to be held in the Engineering Societies building, New York, April 13-23. The commission is an international standardization body in the electrical industry, organized in 1906. This meeting will be its first in the United States.

Convention Calendar

April 6-8—American Oil Burner association. Annual convention and exposition, Book-Cadillac hotel, Detroit. Office of secretary, 350 Madison avenue, New York.

April 15-16—National Metal Trades association. Twenty-eighth annual convention, Hotel Astor, New York. J. E. Nyhan, Peoples Gas building, Chicago, secretary.

April 21-23—American Welding society. Annual meeting at Engineering Societies building, New York. Miss M. M. Kelly, 29 West Thirty-ninth street, New York, secretary.

April 22-24—American Electrochemical society. Meeting, Chicago Beach hotel, Chicago. Colin G. Fink, Columbia university, New York, secretary.

April 28-30—National Foreign Trade council. Thirteenth annual convention, Francis Marion hotel, Charleston, S. C. O. K. Davis, India house, 1 Hanover square, New York, secretary.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

METAL MOLD CASTINGS CO., INC., recently incorporated in New York with 1000 shares preferred stock at $100 par and 10,000 shares of common with no par value, has been formed to manufacture permanent mold aluminum castings at Buffalo, N. Y. It has bought the assets of the Bronze Alumina Corp., Buffalo, which has been producing this line of work for some time. Formal transfer will be made April 1 and the latter company then will be dissolved. Theodore H. Pickering is president of the new company, J. Ernest Kauffman vice president and chief engineer, and Eames Donaldson secretary and treasurer. Mr. Pickering formerly was foundry manager for Josiah Anstice & Co., Rochester, N. Y. Mr. Kauffman has been president of the Bronze Alumina Corp. since its formation and Mr. Donaldson has been with that company for six years. The newly acquired plant will be remodeled to fit it for its new production.

* * *

SAMPSON MACHINERY & SUPPLY CO., Houston, Tex., has bought the plant of the Lucey Mfg. Co. and will proceed to add to it by erecting a foundry and making various improvements.

* * *

EQUITABLE EQUIPMENT CO., New Orleans, La., which has undertaken considerable improvement work in its plant, advises its materials and equipment are bought and will be installed by their own forces.

* * *

PITTSBURGH STEEL CO., Pittsburgh, has taken out a permit to conduct its selling operations in Texas with headquarters at Dallas. This is in response to the heavy demand for structural steel in that state.

* * *

GOULD'S MFG. CO., Seneca Falls, N. Y., for nearly 80 years known by that name, has voted to change its name April 1, to Gould's Pumps Inc. Norman J. Gould has been reelected president, C. W. Colby first vice president, William D. Pomeroy second vice president and general manager, S. D. Gould third vice president, H. S. Fredenburgh secretary and comptroller, E. W. Madden treasurer and M. K. Smith assistant treasurer. Directors are Norman J. Gould, New York; William D. Pomeroy, Seneca Falls; Charles W. Colby, New York; Kenneth Molson, Montreal; Bertrand H. Snell, Potsdam, N. Y.

* * *

WOOD BROS. THRESHER CO., Des Moines, Iowa, is receiving bids on a new plant, which will cover 430 x 500 feet, sawtooth and monitor construction. The plant will contain gray iron foundry, machine shop, forge shop, steel fabricating department, sheet metal shop, woodworking and general assembly departments.

* * *

FOSTER BOLT & NUT MFG. CO., Cleveland, manufacturer of bolts, nuts and cap screws, has completed an additional building and will build a second during the summer. It is also building a modern plant at Chicago to care for western trade, which will be in operation about May 1.

* * *

WILLIAMSPORT WIRE ROPE CO., Williamsport, Pa., has elected Joseph W. Cochran treasurer and president of the board, Robert Gilmore president and general manager, Edgar Manson vice president and secretary, Logan Cunningham vice president, associate treasurer and assistant secretary, Charles M. Ballard vice president and general sales manager and John J. Young assistant treasurer and consulting engineer.

* * *

BLYSTONE MFG. CO., Cambridge Springs, Pa., manufacturer of foundry supplies, has added a plate fabricating department and will produce steel dredge pipes, charging boxes, smoke stacks, hoppers, bins, tanks and other plate products. This department is in charge of E. P. Cullum, formerly with the Phoenix Iron Works, Meadville, Pa. The production department will be in charge of Louis C. Zimmerman.

* * *

PENNSYLVANIA ENGINEERING WORKS, New Castle, Pa., has added a complete welding department with facilities for light and heavy work. R. H. Banks, 530 Union Trust building, Pittsburgh, is in charge of sales. The company also has resumed operations in its foundry after a period of idleness while repairs and improvements were under way. The foundry now has capacity of 1000 tons per month of castings from 10 to 50 pounds each.

* * *

SCREW PRODUCTS CORP. OF AMERICA is buying equipment for its new plant at Taunton, Mass. It is planned to start with the production of 10,000 gross of screws per day, which means an installation of approximately 450 threading machines and 24 heading machines. The company is capitalized at $2,500,000. Bion C. Pierce is president; William Hughes treasurer; Richard Wastcoate, Stanley P. Hall, and Gustave C. Strout, directors.

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GENERAL FOUNDRY PRODUCTS CORP., Coxsackie, N. Y., recently incorporated, was formed for the purpose of buying the foundry and machine shop plant owned by J. G. Newbury. The new company is composed of interests connected with the Coxsackie Holding Corp., manufacturer of projection apparatus. This will give the latter company facilities for making its own castings, which will be machined in the present plant.

* * *

MCFARLAND-MEADE CO., Philadelphia, manufacturer of sheet metal products, has re-elected directors for the ensuing year. J. C. McFarland was elected chairman of the board, William C. Meade president, C. R. Kammerer vice president and general manager, W. Coffman Meade secretary, Frank S. Meade treasurer. Mr. Kammerer formerly was vice president in charge of sales, being associated with the company since Aug. 1, 1925.

* * *

PIONEER BODY CO., Sidney, O., recently incorporated to build automotive bodies, has completed its organization. W. P. Anderson, formerly vice president and general manager of the Anderson Body Co. of the same city, is president and general manager. O. F. Wright, formerly factory manager for the same company, is vice president and factory manager, J. J. Sarver secretary and treasurer. These officers form the board of directors with George B. Quatman, Victor E. Watkins, William F. Orbison and William M. Quinn.

Strike Threat Slows British Selling

(*Concluded from Page* 837)

ly attributed by makers to the extra 6d ($0.12) charged to the foreign buyer, though the preference given to the home customer in the matter of delivery is considered the more potent factor.

Steel shipments from Middlesbrough are, on the whole, encouraging, showing a steady expansion, with excellent business with India and several parts of Africa. The Middlesbrough steel business is becoming increasingly imperial in regard to the destination of products.

Labor unrest will effectually prevent any expansion in the number of operating furnaces. Some steelworks report themselves fairly well off for orders, and tonnage output increases, though the widely miscellaneous character of production is a serious barrier to profits. Recent shipbuilding orders, while having a favorable moral effect, have not yet added much to the tonnage.

It is increasingly obvious that the railways are badly supplied with rolling stock, complaints of delays in shipment being brought to the notice not only of the railway authorities, but the government, and a question is likely to be asked in the House of Commons on transportation service.

The nervous state of the trade is indicated by the unprecedented step taken by the steel makers on the Tees Conservancy board protesting against the government grant to the Appleby Iron Co. for the building of a new plate mill. The protest is based upon the assertion that the number of modern plate mills already existing is more than sufficient, not only for present requirements but for many years' prospective needs.

Steel on order is practically all for constructive purposes. Prices remain steady, mainly because they have already been cut to an unprofitable degree, and there is insufficient big business to test the market. Joists and angles can be bought in Birmingham at £7 ($34.02) to £7 5s ($35.23).

Foreign steel has still to be reckoned with. The Continent has apparently wearied of selling semifinished steel at recent cut prices, and now prefers to place its manufactures on the British market as finished products. Prices are practically unchanged. For foreign billets, it is difficult to get quotations. But several descriptions of steel can be bought here at substantially below British prices, although the buyers have to take their chance of slow deliveries. The railways are very good customers for a variety of work, largely constructional, and some good orders have been placed for cast iron chairs and the various requisites for building rolling stock, which is being pushed forward as rapidly as possible. Railway station reconstruction figures prominently in the program, though this tonnage is only useful to the mills as a supplement to larger business.

Scrap steel is easier at £3 7s 6d ($16.40) delivered South Wales, but more business is being done. The easing of price has been influenced by increasing imports of foreign material. The galvanized sheet trade continues satisfactory, prices being steady at £16 ($77.76) to £16 5s ($78.97). India is a good buyer, and Africa a more encouraging market, with fair contracts for the Far East. Some falling off in Mediterranean trade is attributed to a light rainfall, and any change in this respect would, it is thought, improve orders. Scotch mills are practically crowded with work on thin gages, and in some cases cancellations are threatened unless deliveries are speeded up. The black sheet trade continues fairly good.

The tin plate business leaves a good deal to be desired. Much more work is wanted, but inquiries and orders are small and concentrated largely on certain descriptions. So far, no further development has taken place with regard to the suggested modification of the pooling system, but unless there is an improvement this will be considered.

Belgians Feel German Competition

BRUSSELS, March 15.—(*European Staff Service*)—Belgians are encountering keen German competition. Sales have fallen off and prices are weaker. The Charleroi mills have re-entered the market but competition from this source has not had any influence in general. Confidence is lacking and buyers are deferring purchases in anticipation of lower prices soon.

Blast furnaces are being operated to capacity. Operators are declining orders for export in view of heavy commitments. Domestic demand is brisk. Prices are firm without change. Chill cast pig iron for domestic consumption is quoted at 335 francs ($15.07) f. o. b. furnace. Lorraine and Luxemburg furnaces name the same figure f. o. b. frontier. The export price on phosphorus pig iron ranges from 340 francs to 345 francs ($15.30 to $15.52) f. o. b. Antwerp.

The semifinished steel department is spotty. Transactions are tapering off in volume. Offers made by exporters are too low to interest mills. Basic bessemer blooms are weak at £4 1s ($19.64) f. o.b. Antwerp. Blooms 3 to 4 inches are priced at £4 10s ($21.32), and blooms 2 to 3 inches bring £4 10s ($21.80) all per metric ton f. o. b. Antwerp. Sheet bars have been sold at £4 1..s to £4 16s ($22.76 to $23.24).

Merchant bars are being done as low as £5 6s ($25.69) f. o.b. Antwerp. German agents in London have offered bars at £5 5s 6d ($25.57) and it is reported one large order was booked at £5 5s ($25.45). Lorraine and Luxemburg mill prices are on a parity with Belgian quotations. Structural shape prices are following the downward movement. Several makers refuse to go lower than £4 17s ($23.48) but here again the Germans are active. The latter have taken export business on the basis of £4 16s ($23.24) f. o. b. Hamburg. Wire rods bring £5 17s ($28.33) base, £6 ($29.10) for ¼-inch and £6 2s 6d ($29.70) for 3/16-inch. Rail mills are heavily committed, but a few export orders have been booked on the basis of £5 10s ($26.65) f. o. b. Antwerp. The reorganization of the international rail syndicate is progressing favorably. Plate makers are enjoying better business than other finished steel departments. Plates 3/16-inch thick and heavier are being done around £5 10s ($26.65) f. o.b. Antwerp. Sheets ⅛-inch thick are quoted at £6 ($29.10). German mills are booking business for this gage at £5 19s ($28.86).

Franc—$0.045

America Largest Buyer of British Iron

Birmingham, Eng., March 15.—(*European Staff Service*)—The most noteworthy feature of the Middlesbrough exports of iron and steel during February is the appearance of the United States at the head of the list as the largest foreign buyer of pig iron, shipments totaling 4000 tons. The total iron and steel exports were 97,910 tons, compared with 92,630 tons in January, 89,401 tons in December and 85,667 tons in November. The increase is the more noteworthy as some steel products have been advanced 2s 6d over that period and pig iron 5s to 6d. Foreign shipments of pig iron showed a marked decline being only 14,680 tons or 4000 less than the January total. One explanation of this is that urgent home demands have had precedence and there was little to spare for export. Some foreign orders are in arrears of delivery, and the extra charge of 6d per ton to foreign buyers has doubtless contributed to the decrease. The coastwise sales were 19,586 tons, about 5000 tons over exports. The largest buyers next to America were Belgium, taking 2281 tons, Denmark 2091 tons and Italy 1500 tons. All the other buyers took less than 1000 tons.

The total of 63,644 tons of manufactured iron and steel shipped in February was only once exceeded last year, and compares with 56,611 tons in January. Over 10,000 tons were shipped to South and East Africa and there are hopes of further big orders from this quarter. India was the largest buyer of any country, taking 15,717 tons. Other large buyers were Australia 5821 tons, Egypt 6792 tons and the Straits 1055 tons. Among the African shipments apart from Egypt, Natal received 4519 tons, Kenya 1772 tons and the Cape 3623. Japan received 2618 tons. The number of operating furnaces is now 40, three large firms having restarted their plants, during the month.

Warehouse Buying

Increasing as Weather Opens—Prices Show Little Change

INCREASING activity by warehouses is fostered by a breaking in winter weather. With resumption of building on a larger scale heavier demands are expected. IRON TRADE REVIEW presents here for the first time a representative market indication for Southwest trade, quoting iron and steel products at Ft. Worth warehouses.

Although orders are numerous, the total volume of tonnage involved in trading in the New York metropolitan district is not up to expectations in some quarters. March and April usually are the best months in the year, but March thus far has not displayed any particular activity, although more than January and February. Prices are unchanged.

The movement of steel from Pittsburgh warehouses still is active. Tonnage compares favorably with February's to the same date. Prices are unchanged and strong.

Buffalo iron and steel warehouses note increasing sales and inquiry, bringing March business up to about or slightly above that of March, 1925.

Excepting plates, jobbers in the Cincinnati district report a fair movement of all products, particularly structurals. Blue annealed sheets are slightly firmer than a fortnight ago. Demand for bars is seasonally normal, but with better weather a marked improvement is likely. Prices are unchanged.

Demand for iron and steel out of store has picked up substantially during the past week or ten days at St. Louis. Bars and shapes are moving more satisfactorily.

The feature is the increased activity in structural shapes, reinforcing concrete bars and other building materials. Prices were unchanged, but with a slightly firmer tendency.

Buying of iron and steel warehouse products is running ahead of February and is showing a large increase over March, 1925 at Detroit. Demand for plates is picking up. Prices are firm and unchanged.

Tonnage moving from Cleveland warehouses is better in volume than in February. One jobber reports March the best month in a year. Sheets continue the only product to lag in increased demand. Prices are steady. A slight change was made recently in cutting extras on cold-finished steel. Where one piece per size is cut, the charge is per piece, where two or more are cut, the former hundredweight basis is used.

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.15c
Los Angeles	3.20c
New York	3.24c
Philadelphia	2.90c to 3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c
Ft. Worth	3.90c

IRON BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	2.90c to 3.20c
St. Louis	3.25c
Ft. Worth	3.90c

REINFORCING BARS

Boston	3.265c to 3.50c
Buffalo	3.30c
Chicago, billet	2.60c
Chicago, rail steel	2.00c
Cincinnati	3.30c
Cleveland	2.40c to 3.10c
Detroit	3.15c
Los Angeles, C. L.	3.05c
Los Angeles, L. C. L.	3.30c
New York	2.95c to 3.15c
Philadelphia	3.00c to 3.25c
Pittsburgh	2.50c to 2.60c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c
Youngstown	2.50c to 2.60c
Ft. Worth	3.75c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.25c
Los Angeles	3.20c
New York	3.34c
Philadelphia	2.70c to 3.05c
Pittsburgh	3.00c
Portland	3.10c
San Francisco	3.30c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c
Ft. Worth	4.50c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.00c
Cleveland, 3/16-inch	3.225c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Los Angeles	3.20c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.70c to 3.05c
Philadelphia, 3/16-inch	2.85c to 3.20c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.25c
Ft. Worth	4.50c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.65c
Los Angeles	3.75c
New York	3.89c
Portland	4.25c
Philadelphia	3.50c
San Francisco	3.75c
Seattle	4.50c
St. Louis	3.60c
St. Paul	3.75c

NO. 28 BLACK SHEETS

Boston	5.25c
Buffalo	4.60c
Chicago	4.10c
Cincinnati	4.55c
Cleveland	4.10c
Detroit	4.25c
Los Angeles	4.75c
New York	4.50c
Philadelphia	4.65c
Portland	5.25c
San Francisco	4.75c
Seattle	5.50c
St. Louis	4.60c
St. Paul	4.35c
Ft. Worth	5.50c

NO. 28 GALVANIZED SHEETS

Boston	6.25c
Buffalo	5.90c
Chicago	5.25c
Cincinnati	5.65c
Cleveland	5.25c
Detroit	5.50c
Los Angeles (corr. 28 ga.)	6.00c
New York	5.65c
Philadelphia	5.85c
Portland	6.25c
San Francisco	6.00c
Seattle	6.50c
St. Louis	5.70c
St. Paul	5.60c
Ft. Worth	6.25c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.80c
Los Angeles	4.05c
New York	3.99c
Philadelphia	3.75c to 3.90c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.25c
St. Paul	3.90c
Ft. Worth	4.65c

HOOPS

Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cleveland	3.65c
Detroit	4.30c
New York	4.49c
Philadelphia	4.00c to 4.25c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	4.05c	4.55c
Buffalo	3.90c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.90c	4.40c
Detroit	3.85c	4.25c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	4.00c	4.50c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....

*Rounds only.

COLD ROLLED STRIP

Boston, .100 inch, 500 lb. lots	6.30c
Buffalo	6.35c
Chicago	6.25c
Cincinnati	7.15c
Cleveland, over 500 lb. lots	5.95c
Detroit	6.20c
New York	6.25c
Philadelphia	6.25c
Pittsburgh	6.30c

FOREIGN IRON AND STEEL

New York duty paid

Swedish, hollow drill steel	15.00c
Swedish iron bars, round	6.75c
Flats and squares	7.00c

WELDED PIPE

Discounts from warehouse, New York City

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—23	+21
¼ to ⅜-inch butt	—36	— 5
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6-inch lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
¼ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 8
3 to 6-inch lap	— 3	+ 6
7 to 12-inch lap	— 3	+16

Industrial Business Changes

THE Pittsburgh Cold Rolled Steel Co., Verona, Pa., has moved its Detroit office from the Garfield building to 2995 Hubbard avenue. The branch office at Cleveland has been discontinued and a branch established in the Stambaugh building, Youngstown, O., in charge of A. H. Dillon.

* * *

Curle Mfg. Co. has removed its plant and offices to 543 Howard street, San Francisco.

* * *

Cruban Machine & Steel Corp., New York, has removed its offices to 54 Varick street.

* * *

Peters Garage & Machine Works, Kelso, Wash., has changed its name to the Bashor Motor Co.,

* * *

Corduan Die & Machine Co., Chicago, has changed its name to Corduan Mfg. Co.

* * *

Niles Machine Co., Lebanon, N. H., has succeeded to the business of the former Lebanon Machine Co., Inc.

* * *

Petroleum Heat & Power Co., New York, seller of oil burning equipment, has moved from 1775 Broadway to 511 Fifth avenue.

* * *

H. F. Allen Co. Inc., 30 Church street, New York, dealer in machinery has removed to room 372 at 50 Church street.

* * *

St. Louis Coke & Iron Corp., has moved offices in St. Louis from room 428 to room 933 of the Planters building

* * *

Archer & Baldwin Inc., Bound Brook, N. J., dealer in used machinery, has moved its offices to 126 Liberty street, New York.

* * *

Battey & Kipp Inc., industrial engineers, Chicago, have removed from West Madison street to 231 South LaSalle street.

* * *

Northwest Fence & Wire Works, has established a permanent branch and warehouse at 1518 First avenue south, Seattle, in charge of E. E. Schreves, resident partner.

* * *

David A. Wright Inc., Chicago, will remove May 1 from present quarters to its warehouse at West Roosevelt road and Washtenaw avenue.

* * *

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has established a storage and distributing branch in the Bush Terminal, South Brooklyn, N. Y.

* * *

H. Hirschfield Sons, scrap metals, moved to new quarters at 201 Columbus avenue, Bay City, Mich. Its new warehouse is 50 x 150 feet.

* * *

Holland Furnace Co., Holland, Mich., has opened sales offices at 1019 Eighth avenue, Seattle, in charge of J. A. Pas and Frank M. Horejs.

* * *

American Car & Foundry Co. has bought the Shippers Car Line, dealer in tank cars, with plants at Milton and Carbondale, Pa. The American Welding Co. is a subsidiary.

* * *

John E. Hogle, Indianapolis, Ind., has been appointed sales representative in central Indiana for March-Capron concrete mixers, Jones saw rigs, Barnes pumps and Parsons mixers.

* * *

Bay City Dredge Works, Bay City, Mich., has appointed the West Michigan Equipment Co., Grand Rapids, Mich., its sales representative in western Michigan.

* * *

Manley Sand Co., 527 Roosevelt road, Chicago, has been formed to handle sales in Chicago for the Rockton Molding Sand Co., Rockton, Ill. L. T. Manley is head of the company.

* * *

Jones-McKee Inc., 170 Broadway, New York, and North American Supply Corp., at the same address, are being consolidated in a new corporation with the same name as the former company. Bertrand Weiss is president of the new corporation. A program of expansion is being worked out.

* * *

Cisco Machine Tool Co., Cincinnati, has bought the patents of the Mueller Machine Tool Co., of that city and will consolidate the two lines, continuing service for the types which may be discontinued.

* * *

Millers Falls Co., Millers Falls, Mass., has bought the business of the Accurate Tool Co., Detroit, and will consolidate the two. Machinery at the Detroit plant will be removed to the eastern plant in a short time.

* * *

Teer Wickwire & Co., Jackson, Mich., recently incorporated, has bought the business of the Butcher & Gage Shop and will continue its operation. Donald M. Teer and J. S. Wickwire compose the new company.

* * *

Leary & Manley Co., Alabama and Spring Grove streets, has changed its name to Queen City Foundry Co., and has become incorporated. J. D. Leary is president. The former business will be continued without change.

* * *

Tate, Jones & Co., Leetsdale, Pa., has changed its marketing arrangements and hereafter will sell all its products under direction of E. J. Cobner, general manager of sales, instead of through the General Furnace Co., Philadelphia.

* * *

H. J. Eberman has bought the business of the Canton Steel Co. and the Canton Structural Steel Co., Canton, O., including fabricating machinery and erection equipment. He will continue the business under the name of the Canton Structural Steel Co., at the plant of that concern.

* * *

The L. D. Fisher Co., Milwaukee, broker in iron, steel and scrap metals, has opened a branch office at 1582 First National Bank building, Chicago, in charge of Mark J. Kelly, formerly in the scrap department of Hickman, Williams & Co., Chicago.

Construction and Enterprise

Concise and Timely Business Building Opportunities
from the Field of Industry

BIRMINGHAM, ALA.—Continental Gin Co. has given contract to the H. K. Ferguson Co., Cleveland, for six 1-story buildings for a model cotton-ginning plant for demonstration purposes.

FRESNO, CALIF.—D. M. Barnwell, clerk of Fresno county, is receiving bids for a 1-story garage and equipment maintenance shop, 100x100 feet, at Butler and Chance avenues.

LOS ANGELES—Board of education will build a 1-story manual training shop 70 x 150 feet in connection with Horace Mann Junior high school.

MONROVIA, CALIF.—Coast Heater Mfg. Co. has been incorporated to manufacture water heaters, by A. C. Kronquest, Maywood, Ill.

OAKLAND, CALIF.—California Wire & Cable Co., 1001 Eighty-first avenue, will build a 1-story addition. General contract to the Austin Co., San Francisco.

SAN FRANCISCO—A. Hadsen, 752 Bryant street, is building a 1-story machine shop on Perry street.

DENVER, COLO.—Schlitter Iron Foundry, 3920 Wynkoop street will build a 1-story addition 35x60 feet.

BRIDGEPORT, CONN.—Housatonic Machine & Tool Co., Staples street, is building an addition 40x45 feet.

BRIDGEPORT, CONN.—Murray Automatic Boiler Feeder Co., M. Sholman, president, recently formed, has contracted manufacture of its device and later will build a plant.

PLAINVILLE, CONN.—Plainville Casting Co., Henry T. Washburn superintendent, will rebuild portion of its plant recently burned.

TALLAHASSEE, FLA.—American Steel Co. has been incorporated by G. Zeller and M. O. Grady.

COLUMBUS, GA.—Columbus Iron Works is preparing to make extensions to its warehouse and foundry.

ROME, GA.—Standard Stove & Range Co., R. N. Towers president, has started work on new plant on Alabama road.

VALDOSTA, GA.—George Cutter Co., care Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., is building a branch plant for the manufacture of spun lighting standards.

AVERILL, ILL.—Hire Foundry Co., 3000 North Adams street, has been incorporated with $25,000 capital to operate a foundry and machine shop by H. R. Hire, H. Maas and Paul Milkeret. Todd, Morgan, Pendarvis & Arbor, Continental National Bank building, are correspondents.

CHICAGO—Chicago Mfg. Co., 1462 South Michigan boulevard, will build a 1-story sheet metal shop 100x121 feet.

CHICAGO—Charles R. Canfield, 6232 South Bishop street, will build a machine shop 77x125 feet at 6796 South Chicago avenue.

CHICAGO—Gust Hoffman, 2921 East Seventy-ninth place, will build a die manufacturing plant 25 x 50 feet, one story. Franz Roy, 9046 Commercial avenue, is architect.

CHICAGO—Elkay Mfg. Co., 606 North Sangamon street, manufacturer of plumbing supplies, will build a 1-story plant 75 x 125 feet.

CHICAGO—Joflin Mfg. & Supply Co., 3700 South Morgan street, manufacturer of electrical equipment, will build a 2-story shop addition 90 x 90 feet.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

CHICAGO—Morton Mfg. Co., 5105 West Lake street, manufacturer of railroad appliances, will build two 2-story additions 50 x 105 feet and 75 x 225 feet. General contract to E. L. Ward, 4733 Congress street.

CHICAGO—Steel Specialties Inc., 310 South Michigan boulevard, has been incorporated with $25,000 capital to manufacture steel products by Fred Otte Jr., E. S. Braymer and Jay Stough. Stough, Carolan & Lay, 10 South LaSalle street, are attorneys.

CHICAGO—Progressive Motor Devices Corp., 11224 South Michigan avenue, has been incorporated with 1500 shares no par value to manufacture automobile parts by Bernard H. Mossinghoff, William Hansen and Arthur Walpole. Charles W. Paltzer, 332 South Michigan boulevard, is correspondent.

CHICAGO—Rapid Machine & Tool Co., 1621 West Seventy-fourth street, has been incorporated with $15,000 capital to manufacture standard and special machinery and tools, by H. Thielgaard, H. J. Ham and R. J. Masters. R. C. Masters, 2714 Canal street, is correspondent.

CHICAGO—Calumet Radiator Cabinet Co., 59 East Twenty-sixth street, has been incorporated with 1000 shares to manufacture general sheet work and metal furniture by Alvin Scuffy, Ernest Youngstrom and Thomas H. Reynolds. Robert H. Holmes, 70 West Monroe street, is correspondent.

CICERO, ILL.—Stafford Auto Accessories Sales Co., G. C. Geraghty, president, 6301 South Park avenue, is planning a 2-story factory.

FREEPORT, ILL.—Arcade Mfg. Co., manufacturer of molding machines, will build a foundry 200 x 200 feet, cupola building 40 x 40 feet, with new cupola and elevator.

INDIANAPOLIS—Thomas L. Green & Co., manufacturer of machinery for baking plants will build an addition 90 x 324 feet which will be equipped for production of its machines.

INDIANAPOLIS—Wood Hydraulic Hoist & Foundry Co. of Indiana has been incorporated to manufacture truck equipment for heavy vehicles by Walter P. Pollard, William C. Richardson, Norman A. Perry and James A. Perry.

KOKOMO, IND.—Washburn Mfg. Co. has been incorporated to operate a machine shop by George H. Washburn, B. J. Washburn and C. A. Buck.

KOKOMO, IND.—Continental Steel & Wire Co. has been incorporated to manufacture steel products by J. E. Frederick, George W. Charles and A. A. Charles.

MARION, IND.—Superior Body Works, Allen Messick, manager, is considering an addition to its plant.

NORTH ANDERSON, IND.—Anderson Stove Works, J. C. Quinn, manager, is having plans made for a 1-story addition.

DAVENPORT, IOWA—Dooley & Braden Mfg. Co., manufacturer of oil heating devices, will move its business to 2416 Ford avenue, Rock Island, Ill., where a plant is being equipped.

MARSHALLTOWN, IOWA — Marshalltown Mfg. Co., J. M. Farber, secretary, is having plans drawn for a 3-story addition and machine shop 60 x 75 feet.

LOUISVILLE, KY.—Stimpson Computing Scale Co. has bought a site and is having plans made for a plant 120 x 365 feet, several stories.

BALTIMORE, MD.—McNamara Bros. Inc., tank manufacturers, Kloman avenue, will build addition 71x100 feet.

BALTIMORE, MD.—Republic Boiler & Radiator Co., Union avenue, Woodberry, M. H. Landis, president, is having plans made to increase production 50 per cent.

FOXBORO, MASS.—The Foxboro Co., manufacturer of gages, recording instruments, etc., is figuring on structural steel for a plant addition.

GREENFIELD, MASS.—Greenfield Steel Stamp Works, Inc. has been formed with $30,000 capital by Harold W. Cairns, Quincy, Mass., Leslie M. Dill, Boston, and Helen M. Field, Allston, Mass.

CADILLAC, MICH.—Cadillac Specialty Mfg. Co. has been incorporated with $60,000 capital to manufacture metal and wood furniture and specialties by L. J. Doming, Harold DeLisle and F. H. Ashworth, 123 Chapin street.

CRYSTAL FALLS, MICH.—Hemlock Iron Land & Development Co. has been incorporated with $200,000 capital to own iron ore land and engage in mining in Hematite township, Iron county, by J. Thoburn Gibson, Masa, Mich., and Fred H. Abbott, Crystal Falls.

DETROIT—Wabash railroad, J. S. Dant, district superintendent, Union depot, Detroit, will build a car repair shop.

DETROIT—Huggins Tool Co., 258 West Congress street, will build a 1-story assembly plant 110x120 feet at Highland park.

DETROIT—Banner Brass Works has been incorporated with $5000 capital to operate a brass foundry and shop by Albert H. Krohn, 7452 Linwood avenue and others.

DETROIT—American Smelting Works has been incorporated with $10,000 capital to recover and refine brass refuse by Zacharie Campian, John Panasuk and Fred E. Atchison, 8727 Dexter boulevard.

DETROIT—Kelch Ventilating Heater Co. has been incorporated to manufacture automobile parts, with capital of $10,000, by Hilaria V. Smyser, and Harriet H. Kelch, 2578 Helen street.

JACKSON, MICH.—Jackson Steel Products Co. is adding 12 dry kilns to its equipment.

ROCHESTER, MICH.—Oakland Stamping Machine Co., E. L. Stryker, president, is planning a factory extension of one or two stories.

ST. CLAIR, MICH.—Diamond Crystal Salt Co., Henry Whiting, president, 916 South

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old Range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	11.00 to 12.00
Algerian low phosphorus, 52 to 54 per cent	10.00 to 10.50
Riff low phosphorus, 65 to 66 per cent	9.50 to 10.00
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	10.00
Spanish foundry or basic, 50 to 54 per cent	8.50 to 9.50
Algerian foundry and basic, 50 to 54 per cent	9.25 to 9.75

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent.....nominal
Indian minimum 47 per cent.....nominal
Caucasian, 53 to 55 per cent.....
Washed, 42 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$17.50
Washed gravel, imported duty paid eastern tidewater, per net ton	17.50 to 18.25

Riverside avenue, will build an addition to its plant.

ALBERT LEA, MINN.—American Gas Machine Co., H. C. Hanson, president, 233 East Clark street, has bought site and plans a 3-story plant.

HOPKINS, MINN.—Minneapolis Threshing Machine Co. has given general contract to C. F. Haglin & Sons Co., Lumber Exchange building, Minneapolis, for a 2-story plant 60x100 feet at Hopkins.

HATTIESBURG, MISS.—Brophy Automatic Air Dog Corp. has been incorporated with $30,000 capital by J. O. Brophy and M. C. Arrington.

KANSAS CITY, MO.—A. Y. McDonald Mfg. Co. has been incorporated with $50,000 capital by P. A. Williams, 1410 Union avenue.

ST. LOUIS—American Silversheet Co. has been incorporated with $12,500 capital by Horace C. Woods, 3966 DeTonty street.

ST. LOUIS—Atlas Tool & Mfg. Co., 5707 Manchester street, has been incorporated by George A. Delf.

ST. LOUIS—George Cutter Co., W. J. Leightner, works manager, has let contract for plant 82x475 feet for manufacture of spun lighting standards

ST. LOUIS—St. Louis Machine Tool Co. has been incorporated with 500 shares no par value to manufacture tools and machinery by Jacop Wissler, A. P. Spack and Louis Wissler. Harry C. Barker, Boatmens Bank building, is attorney.

KEENE, N. H.—F. A. Futnam Mfg. Co. has been incorporated with $50,000 capital to manufacture machinery and chemicals by Fred A. Putnam, president.

LEBANON, N. H.—Niles Machine Co. has been incorporated with 1000 shares no par value to operate a foundry and machine shop formerly owned by the Lebanon Machine Co. Arthur F. Niles is president.

MANCHESTER, N. H.—Como Apparatus Co. has been incorporated with $65,000 capital to manufacture electrical and radio apparatus by Philip C. Lockwood, 66 Carpenter street.

ELIZABETH, N. J.—Lidgerwood Mfg. Co., 96 Liberty street, New York, will build a foundry and shop at Elizabeth.

HARRISON, N. J.—The Otis Elevator Co. is in the market for structural steel for plant extensions here.

JERSEY CITY, N. J.—Carteret Foundry Co., 32 Pacific avenue, will rebuild burned portion of its plant.

MILLVILLE, N. J.—Madden Foundry Co., John Madden president, will rebuild its burned foundry and install some new equipment.

MONTCLAIR, N. J.—J. S. & L. Carlson Co., 89 Walnut street, will build a 1-story machine shop.

NEWARK, N. J.—Chrome Alloy Tube Corp., has been incorporated to manufacture special steel tubes. E. W. Bachman is president.

PLAINFIELD, N. J.—Wood Newspaper Machine Corp. has let general contract to Wigton Abbott Corp., 552 West Twenty-third street, New York, for a 2-story addition 38 x 159 feet.

ROSELLE, N. J.—Rapid Addressing Machine Co., T. D. Adams, president, 46 West Twenty-third street, New York, will build a 1-story plant 177 x 321 feet.

BROOKLYN, N. Y.—Sarnelli & Sons Inc. has been incorporated with $20,000 capital to fabricate and manufacture structural steel and products by Charles Sarnelli, 2709 West Eleventh street, William Sarnelli, Brooklyn, and A. M. Gressier, Ozone Park.

NEW YORK—Benedict Metal Works, Inc., 1654 Webster avenue, manufacturer of drawn metal specialties is having plans made for a 3-story addition.

NEW YORK—M. & M. Iron Works has been incorporated with $50,000 capital by A. Mashinoff, A. Meizler and A. Steele. M. Rosenthal, 645 Tremont avenue, is attorney.

NEW YORK—W. A. L. Waddell, 150 Broadway, consulting engineer, is preparing plans for the Port of New York authorities for two bridges over the Kill Von Kull.

NEW YORK—Contract has been awarded for reinforcing bars for the Coney Island repair shops of the Brooklyn-Manhattan Transit Co.

NEW YORK—Oil Burner Engineering Co. has been incorporated with $5000 capital by J. J. Kelley and A. J. Bebarfeld. I. Sargent, 233 Broadway, is attorney.

NEW YORK—Triplet Gauge Co. has been incorporated with $5000 capital to manufacture gages and other devices by C. dePamphilis, R. dePamphilis and E. Kelley. E. Spector, 51 Chambers street, is attorney.

PIERPONT, N. Y.—Robert Gair Co., paper manufacturer, has closed on several hundred tons of structural steel and reinforcing bars for a plant addition here.

TROY, N. Y.—Troy Community Garage, F. M. Baucus, Troy Automobile club, manager, has plans for 4-story garage with machine shop and service department.

YONKERS, N. Y.—The National Sugar Refining Co. of New Jersey has closed on several hundred tons of structural steel to the Hedden Iron Construction Co. for the erection of a plant building here.

GREENSBORO, N. C.—Monarch Machine & Mfg. Co. has been incorporated with $100,000 capital by C. H. Lewis and W. C. Boren.

CINCINNATI—Steinkoenig Motor Truck Co., Jacob Steinkoenig, manager, 2311 Harrison avenue, is building a 2-story plant 90 x 150 feet.

CINCINNATI, O.—Schaible Foundry & Brass Works has been incorporated with $50,000 capital by Charles F. Schaible, Frederick J. Klein, Charles Mason, Albert Fischer and George Rothem.

CINCINNATI, O.—Boye & Emmes Co., lathe manufacturer, has placed contract with Austin Co., Cleveland, for new plant to replace one recently burned. New plant will be 90x340 feet, 1-story monitor type, center bay served by 10-ton crane.

CLEVELAND—Domestic Electric Co., 7209 St. Clair avenue, R. J. Lamb, secretary, will build a 2-story addition 40x140 feet.

CLEVELAND—Rickersberg Brass Co., Perkins avenue and East Thirty-seventh street, has bought a site at Kelley avenue and East Thirty-seventh street and will build a new brass plant with 60,000 square feet floor space.

LONDON, O.—Ohio Tubular Products Co. has been incorporated with $500 capital by Eben H. Jones, Thomas O. Nevison, Camden McVey, J. W. Reavis and J. C. Little.

TOLEDO, O.—Mather Spring Co., G. Mather, president, Castle boulevard, has let general contract to A. Bentley & Co., 201 Belmont avenue, for a 1-story addition 25 x 242 feet.

WOOSTER, O.—Safety Stair Tread Co. will build a 1-story addition 80x180 feet. Charles E. Loehr is general manager.

YOUNGSTOWN, O.—Combustion Appliances Co. has been incorporated with $500 capital by G. W. Ruggles, Margaret L. Ruggles, Lawrence Young, Wallace F. Judd and Edna A. Swingler.

BLACKWELL, OKLA.—Acme Foundry & Machine Co. has been incorporated with $40,000 capital by E. L. Graham, Coffeyville, Kan., and Don DeGeer, Blackwell.

OKLAHOMA CITY, OKLA.—Automatic Lubricating Oil Equipment Co. has been incorporated with $50,000 capital by W. H. Peaden, Dallas, Tex., and A. C. Neel, Norman, Okla.

OKMULGEE, OKLA.—Eagle Picher Lead & Zinc Co. is opening old smelter plant at Schulter, Okla., for extensive operation in zinc mining. Plant has been inactive since 1917.

New machinery will be needed. Earl T. Morgan is general manager.

PAWHUSKA, OKLA.—Santa Fe railroad will build 32-mile line between Pawhuska and Fairfax, Okla., and has ordered equipment. H. W. Wagner, chief engineer, Topeka, Kans., is in charge.

PONCA CITY, OKLA.—Marland Refining Co. announces addition of new pipe stills and Gray towers to its refinery to supplement units already installed. Wayne P. Rice is plant superintendent.

TULSA, OKLA.—Tulsa Ice Machine Co. has acquired site 100 x 130 feet for new plant for manufacture of ice machinery. W. M. Coy, 212 East Newton street, is general manager.

TULSA, OKLA.—Consolidated Lead & Zinc Co. of Joplin, Mo., has purchased properties of Tulsa Quapaw Mining Co. in northeastern Oklahoma for $700,000 and will make extensive additions to machinery and power plants.

GOLD HILL, OREG.—Kel-Mar-Pet Mining Co. will build an ore reduction plant of 100 tons daily capacity, equipped with ball and roller mills, roasting furnace and flotation equipment, electrically driven. Capital has been increased from $25,000 to $150,000.

ALLENTOWN, PA.—Fuller Co. has been incorporated with $25,000 capital to manufacture machinery and apparatus for handling granular materials by R. S. Weaver, Catasaqua, Pa., and J. W. Fuller.

ALLENTOWN, PA.—Hersh Bros. Co. has been incorporated with $30,000 capital to manufacture fans and ventilating systems and devices by Thomas M. Jackson, 2800 Greenleaf street, Lloyd J. Hersh and Irwin S. Riegel.

BEAVER FALLS, PA.—Ingram-Richardson Mfg. Co., manufacturer of enameled iron devices, will build an addition to its Bayonne, N. J. plant.

BRISTOL, PA.—Pacific Steel Boiler Corp., Waukegan, Ill., which recently took over the plant and business of the General Boilers Corp., with O. T. Nelson as president, is completing its branch here.

PHILADELPHIA—H. W. Butterworth & Sons Co., Cedar and York streets, machinery manufacturers, will build a 1-story addiiton.

PHILADELPHIA—Bids have recently been closed by the Hellwig Silk Dyeing Co., Delaware and Howell streets, on a mill addition.

PHILADELPHIA—Bids have been closed on the general contract for a manufacturing building for Edwin J. Schoettle Co., mailing tubes, etc., Eleventh street and Brandywine.

PHILADELPHIA—Contract for a $16,000 boiler house for the LaFrance Textile Co., Orthodox and Large streets, has been awarded to the Wints Bros. Co., 1618 Sellers street.

PHILADELPHIA—Work will be started shortly on a large hydroelectric plant for the Philadelphia Electric Co. on the Susquehanna river, below Conowingo, Md.

PHILADELPHIA—Contract has been awarded to J. L. Fawley, 1615 Spruce street, for a $11,000 factory for the M. Rice Co., 1139 North American street.

PHILADELPHIA—Contract has been awarded to George P. Clayton, 1817 North Twentieth street, for a manufacturing building for John G. Mahon, 1910-12 Fairchild street.

PHILADELPHIA—Contract has been awarded by the Concordia Silk Mills, Allegheny avenue and Bouginot street, to J. L. Fawley, 1615 Spruce street, for a $20,000 mill building.

Refractories

FIRE CLAY BRICK
Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00 to 45.00
Pennsylvania, No. 2	35.00 to 40.00
Ohio, No. 1	43.00 to 46.00
Ohio, No. 2	38.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	43.00 to 45.00
Kentucky, No. 2	40.00 to 43.00
Missouri, No. 1	43.00 to 46.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	43.00 to 47.00
Maryland, No. 2	39.00 to 42.00

SILICA BRICK

Pennsylvania	40.00
Chicago	49.00
Birmingham	48.00 to 52.00

MAGNESITE BRICK
Per Net Ton Seaboard Base

9 x 4½ x 2½	65.00

CHROME BRICK
(Per Net Ton)

9 x 4½ x 2½	45.00

PHILADELPHIA—John W. Watson Co., manufacturer of automobile accessories, Locust and Twenty-fourth streets, is building a 1-story plant 124 x 783 feet at Tulip and Sanger streets.

PHILADELPHIA—Brown-Booth laboratories Inc., 233 North Sixty-third street, has been incorporated with $10,000 capital to manufacture electrical and radio apparatus by Bradway Brown, Swarthmore, Pa., George M. Booth, Swarthmore and Lawrence Kilborn, Philadelphia.

PHILLIPSBURG, Pa.—Cenco Casting Co. has been incorporated with $30,000 capital to manufacture castings by Charles C. Bange, H. E. Webber, J. W. Wetter, Phillipsburg.

PITTSBURGH—Fire damaged the corrugated iron factory building of the Pittsburgh White Metal Co., 3116 Penn avenue, March 17.

PITTSBURGH—Enterprise Bronze Co. has leased a building at 515 Reedsdale street and will equip it as a foundry for production of nonferrous castings.

PITTSBURGH—Star Ornamental Iron & Wire Co., 2319 Forbes street, Hymen Blum, manager, is considering building a 1-story plant 50 x 80 x 100 feet.

PITTSBURGH—Goodman Mfg. Co., Farmers Bank building, manufacturer of mining machinery and similar equipment, will enlarge and improve the plant recently bought for a branch at Liverpool street and Preble avenue.

PITTSBURGH—The American Sheet & Tin Plate Co. has awarded a general contract to the Concrete Steel Bridge Co., Clarksburg, W. Va., for a $30,000 metallurgical laboratory at its Wood works in McKeesport, Pa.

PITTSBURGH—Oriental Alcoa Ltd. has been incorporated with $25,000 capital to manufacture aluminum devices and appurtenances by George O. Morgan Jr., Shields, Pa., Arthur V. Davis, Edward K. Davis, and Roy A. Hunt, Pittsburgh.

READING, PA.—The toy manufacturing plant of Keyser Frey on North Fifth street was destroyed March 17 by fire, causing a loss of $100,000.

ROYERSFORD, PA.—Ideal Foundry & Machine Works has been incorporated with $75,000 capital to operate a foundry and machine shop by John W. Newborn, H. R. Willi, George W. Newborn.

SPRING CITY, PA.—Keystone Drawn Steel Co., Isaac D. Hetzel, 322 Richmond street, Philadelphia, manager, will build a plant to manufacture steel specialties.

WILKES-BARRE, PA.—Wilkes-Barre Tile & Marble Co. has been incorporated with $10,000 capital to manufacture tile and ornamental iron work by Albert J. Breig, 316 North Washington avenue, Scranton, Pa., William T. Mullen, Charles H. Keegan and J. W. Schrieber.

WRIGHTSVILLE, PA.—C. H. A. Dissinger & Brothers Co. will build an addition 60 x 100 feet for the manufacture of automobile pistons and piston rings.

PROVIDENCE, R. I.—Aetna Automatic Oil Burner Co. Inc. will build a 1-story addition. Contract to C. I. Bigney Construction Co., 184 Washington street.

PROVIDENCE, R. I.—Liberty Tool & Gauge Works, 338 Bernon street, Woonsocket, R. I., will build a 1-story factory here, 80x120 feet.

SIOUX FALLS, S. D.—Bids will be received by Walter D. Leyse, city auditor, until March 25, for sewage treatment plant and appurtenances as follows: (1) several thousand lineal feet sewers and two overhead bridge crossings. (2) Sewage treatment plant, grit chamber, 7 imhoff settling tanks, sprinkling filters, secondary tanks, conduits and buildings. (3) sewage pumping station, concrete pump well, 860 feet 16-inch A cast iron pipe. (4) three centrifugal sewage pumps, horizontal and direct connected with motors. (5) electric and power wiring. To cost about $900,000. Albert A. Chenoweth, 226 Paulton Block, Sioux Falls, is engineer.

CHATTANOOGA, TENN.—Boiler shop of Casey-Hedges Co. will be rebuilt at once following fire damage.

CHATANOOGA, TENN.—Viking Automatic Sprinkling Co. has been incorporated with $10,000 capital by A. E. Johnson and M. L. Cook.

CHATTANOOGA, TENN.—Viking Automatic Sprinkler Co. has been incorporated with $10,000 capital by D. A. Marshall, 2006 McCalla avenue.

CHATTANOOGA, TENN.—The United States Cast Iron Pipe & Foundry Co. is planning a new plant on a 35 acre tract, with 2000 feet front on the Tennessee river, adjoining its present plant.

KINGSPORT, TENN.—Kingsport Foundry & Machine Works, J. B. Burger manager, has bought the equipment of the Marion Foundry & Machine Works, Marion, Va., and will remove it here, installing in new buildings. Purchase includes cupola, crane, patterns, blowers and other equipment.

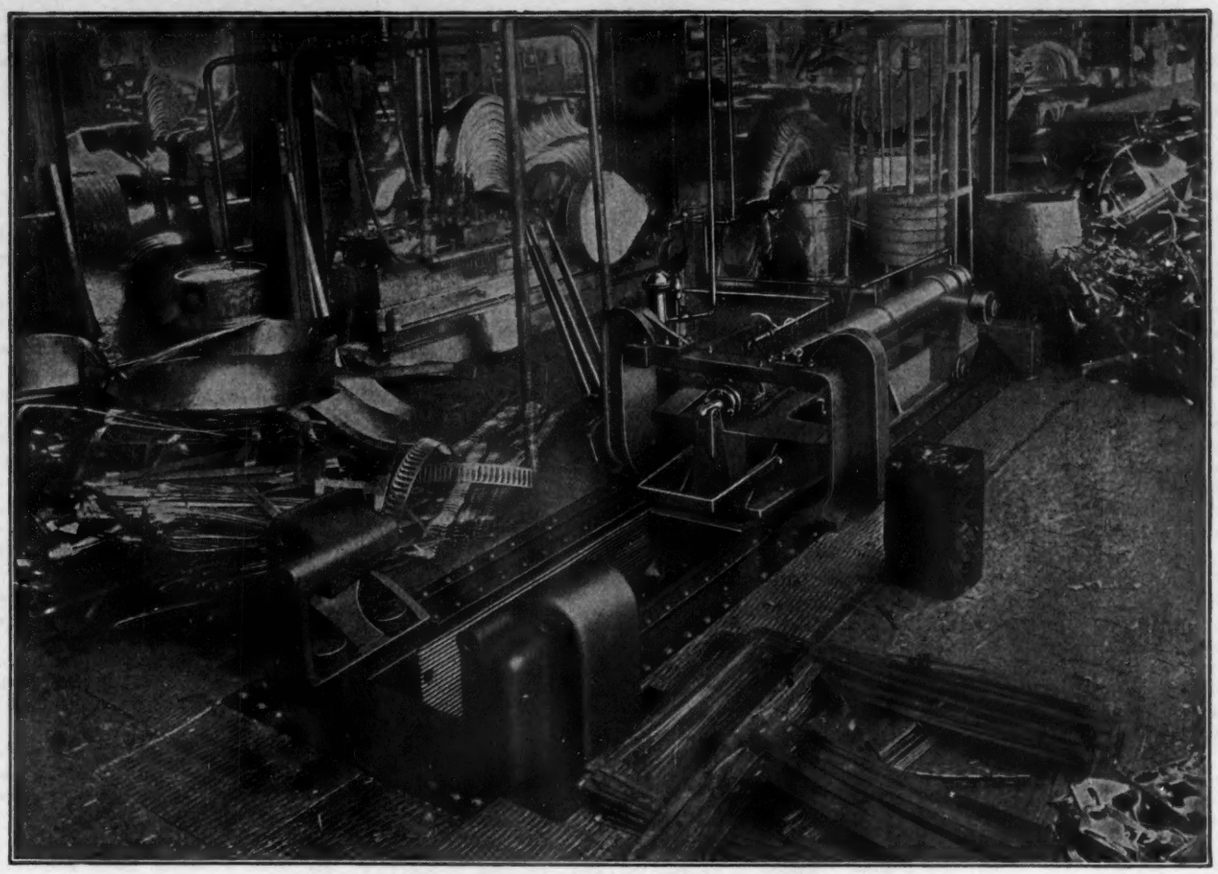
KNOXVILLE, TENN. — Knoxville Stove Works will build 3-story addition 60x60 feet to its warehouse on Ailor avenue.

AMARILLO, TEX.—Refinery Equipment Co. has been incorporated with $10,000 capital by Reece Allen and Gordon West.

CLEBURNE, TEX.—Gulf, Colorado & Santa Fe railroad, 408 Union Depot building, Galveston, Tex., is taking bids for a blacksmith shop 122 x 517 feet, a flue shop 45 x 228 feet and other additions.

ELECTRA, TEX.—W. P. Lincoln is having plans made for a plant for the fabricating of tanks.

NORFOLK, VA.—Butcher Adjustable Window Corp., 251 Tazewell street, C. E. Herbert, president, will equip a plant for the manufacture of special adjustable windows and operating mechanisms.



Typical Installation in Well-Known Automobile Plant

WHY SHEET-SCRAP CAN BE PROFITABLY COMPRESSED

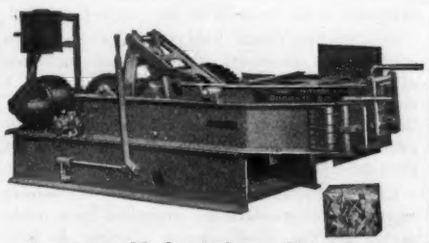
It commands at all times the best price;
It can be more conveniently stored;
It can be more economically handled;
It can be readily held for favorable markets;
It practically eliminates corrosion;
It permits of loading cars to capacity;
It saves much heat in remelting.

LOGEMANN SCRAP-METAL PRESSES

Hydraulic and Mechanical Types

LOGEMANN BROTHERS COMPANY
3126 Burleigh St. Milwaukee, Wis.

Also presses making crucible-size bricks of copper, brass, aluminum and other metals.



Logemann Mechanical-type Metal Baler

Please indicate character of scrap, quantity and heaviest gauge, when writing.

SEATTLE—York products Co., manufacturer of refrigerating machinery and equipment, has let general contract to the Austin Co., for a plant.

BLUEFIELD, W. VA.—National Armature Co., Locust street, will build a plant at Beech street and Bluefield avenue, 60x140 feet. General contract to Rosenheim, Pemberton & Cruise.

HUNTINGTON, W. VA.—International Nickel Co., A. S. Shofstall general manager, will build a polishing department building, one story 65 x 275 feet.

FON DU LAC, WIS.—J. E. Burke, 341 North Park avenue, metal weather strip maker is building a 1-story plant 44x100 feet.

GREEN BAY, WIS.—Brown County Motors, Inc., 610 Main street, will build a $100,000 garage and repair shop, 75x170 feet, 3-story and basement, at Washington and Doty streets. Plans being completed and bids will be asked at once by Architects Oppenhamer & Obel, Green Bay and Wausau, Wis.

KILBOURN, WIS.—William R. Smith, city clerk, closes bids March 18 for one 750-gallon pump and electric motor for the city water plant.

MADISON, WIS.—The Capital City Culvert Co. has increased its capital stock from $100,000 to $175,000 and plans expansion of its plant, devoted to the manufacture of steel culverts for concrete highway construction.

MADISON, WIS.—A. W. Bayley, secretary, State Board of Control, will close bids April 14 on boilers, pumps, engines, generators, air compressors and other needs for a central heat, light and power plant at the State Tuberculosis Camp near Tomahawk Lake.

MADISON, WIS.—The foundry and machine shop business of Thomas C. Olson has been incorporated as the Thomas C. Olson Co., with $35,000 capital stock. Incorporators are Thomas C. Olson, Edward K. Olson and Joseph B. Hermsen.

MANITOWOC, WIS.—Wastman Mfg. Co., North Eleventh street, manufacturer of hose couplings, will build a 2-story addition 50x100 feet.

MANITOWOC, WIS.—Architects Smith & Brandt, Manitowoc and Appleton, Wis., are preparing plans for a $25,000 addition for the Wastman Mfg. Co., manufacturer of hose couplings, Manitowoc.

MARSHFIELD, WIS.—Following contracts were let by the board of education on a $300,000 addition to the Purdy vocational and junior high school: General works, Theo. J. Molzahn, LaCrosse, Wis., $186,345; heating, A. B. Donaldson Co., Minneapolis, $28,345; plumbing, M. B. Quall, Clintonville, Wis., $8,937. Architects Parkinson & Dockendorff, LaCrosse, are in charge.

MILWAUKEE—Contracts have been placed by the Seamless Steel Products Co, Twenty-seventh and Greves streets, for a pickle house, 48x80 feet.

MILWAUKEE—Fred W. Velguth has organized the Art Craft Iron Works, and opened a shop at 420 Fourth street, for fabricating ornamental iron, wrought iron products, art goods, fireplace needs, etc.

MILWAUKEE—Meredith Bros. Co., 253 Washington street, have taken the contract to erect a 1-story addition, 40x60 feet, for the Crown Metal Co. at 255-257 Washington street.

MILWAUKEE—Contracts will be awarded March 18 by the Val Blatz Co., 604 Broadway, for a public garage and repair shop, 60x156 feet, on Juneau avenue, between Broadway and Milwaukee street. It will cost about $50,000.

MILWAUKEE—Articles of incorporation have been filed by the Rajax Spring Co., capital stock $10,000, to manufacture automobile and other vehicle springs, do repair and service work, and conduct a general machinery business. Incorporators are Raymond A. Young, John Pike and James F. Pike.

MILWAUKEE—Jacob H. Walder, 393 Third street, manufacturer of wire fixtures, forms, etc., has incorporated his business as the J. H. Walder Mfg. Co., with a capital stock of $25,000. Edward J. Coupal and Matthew J. Orth appear with Mr. Walder as incorporators.

RACINE, WIS.—The Mohr-Jones Hardware Co. is contemplating the erection of a large addition to its sheet metal products plant. Additional acreage has just been acquired.

Chile Raises Ore Duty

Washington, Feb. 2.—According to consular reports to the department of commerce, Chile has increased its export duty on iron ore, this duty, formerly 0.20 peso per metric ton, now being dutiable at the rate of 0.60 peso per metric ton. These duties are payable in the same manner and within the same time as other export duties, which may be paid 20 per cent in gold and 80 per cent in drafts at 90 days' sight on New York or London.

Business in Canada

ESQUIMALT, B. C.—Hodgson, King & Marble, London building, Vancouver, B. C., have the general contract for a machine shop here for Yarrows, Ltd., estimated to cost $12,000.

NEW WESTMINSTER, B. C.—The Scottish Canadian Paper Co., Twelfth street, has started work on the first unit of a paper mill here to cost $40,000.

ST. BONIFACE, MAN.—The Elmwood Pulp & Paper Co. has acquired a factory site here and proposes to build a craft paper mill with a daily capacity of between 35 and 40 tons.

WINNIPEG, MAN.—The Clearton Vacuum Tube Co., New York, announces that it will build a complete modern vacuum tube factory here during the present year.

WINNIPEG, MAN.—The Manitoba Paper Co. has applied for incorporation and proposes to acquire and take over the plant and business here of the Manitoba Pulp & Paper Co. The new company will have $11,500,000 capital stock, compared with $2,300,000 of the old concern.

CAP ROUGE, QUE.—The St. Regis Paper Co. will start work soon on a mill here. Power will be supplied by the Quebec Power Co.

DONNACONA, QUE.—The Donnacona Paper Co., Ltd., is having plans prepared by J. A. Beaauchemin for power development plant here estimated to cost $500,000.

FARMERS, QUE.—The Canadian International Paper Co. Montreal, proposes to start work soon on power development plant on the Gatineau river near here at a cost of $8,000,000.

HULL, QUE.—Thompson, Ltd., care Eugene St. Jean, 59 Principal street, is receiving bids, no closing date set, for an office building, factory, boiler room, dry kilns, etc., on Front street.

MONTREAL, QUE.—Construction work is nearing completion on the St. Henry addition to the plant of the Steel Co. of Canada, Ltd., here, and the installation of machinery will be started in the course of the next few weeks.

New Trade Publications

BALL BEARINGS—A bulletin to suggest savings in maintenance and operating costs due to use of its ball bearings on electric motors has been issued in attractive form by the New Departure Mfg. Co., Bristol, Conn.

MATERIAL HANDLING—A broadside by Truscon Steel Co., Youngstown, O., illustrates its material-handling platforms and boxes, with specifications and advantages of steel construction.

FORGING MACHINES—Another of its bulletins describing how a forging problem is solved has been issued by the National Machinery Co., Tiffin, O. It covers the forging of an automobile door hinge, showing each step of the process.

STEELMAKING—Believing that the child of today may be the buyer of steel tomorrow Inland Steel Co., Chicago, has prepared a book of pictures of steelmaking processes, with text in simple language, covering the principal steps from iron to finished product.

DISCONNECTING SWITCHES—Design and engineering specifications of two of its types of disconnecting switches are presented in a leaflet by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Illustrations include switches and a table showing the outdoor shell-type insulator assembly ratings.

GEAR RATINGS—Changes of horsepower ratings on fiber gears are presented in a publication by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. A larger unit of fiber stress has been used as the foundation and the computation thus changed. Examples are given of the method of calculating horsepower ratings, tables of preferred pitch, values of constants, gear data and horsepower ratings at various pitches.

PRODUCTION SERVICE—A bulletin showing miniatures of 16 production service layouts is being issued by the Kearney & Trecker Corp., Milwaukee. It is a recapitulation of this series to enable those desiring one or more of the originals to pick out those they need. It covers the field of production milling by the equipment of this company.

ELECTRIC RECORDING UNITS—A bulletin has been issued by the Esterline-Angus Co., Indianapolis, Ind., calling attention to the need for checking consumption of electric current for power, to eliminate removable losses that follow where no record is kept. Various recording instruments are illustrated and their uses explained.

IN 1925

IRON TRADE REVIEW
CLEVELAND

GAINED

177 pages of paid display advertising — nearly double its 1924 gain.

414 in net paid circulation.

NEAREST COMPETITOR LOST

More than 600 pages in paid display advertising — more than three times its 1924 loss.

182 in net paid circulation.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount of $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	12½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	33	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

TREADS AND COUPLINGS

Butt weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon	application
2-inch	23	7
2½ to 6-inch	26	11
8 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
8 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+24	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
4¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including $\frac{5}{16}$-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot ..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{5}{16}$ inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.25c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

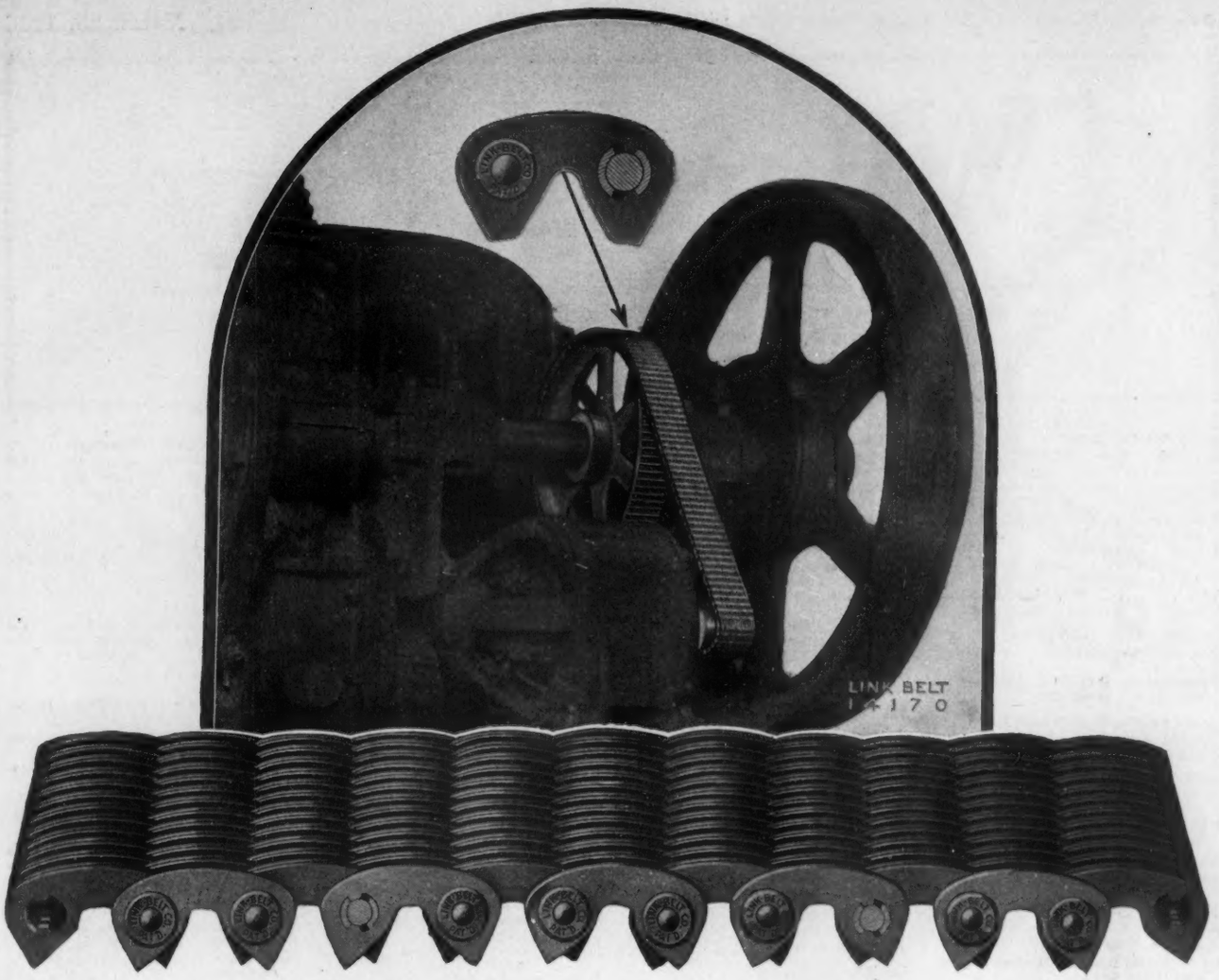
With not more than four straight cuts. (including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c



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Used on practically every type of machine, in almost every industry, it has proven a strong, yet flexible means of driving machinery of every character.

Link-Belt Silent Chain Drives from ½ to 10 H. P. now in stock in many cities.

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2580

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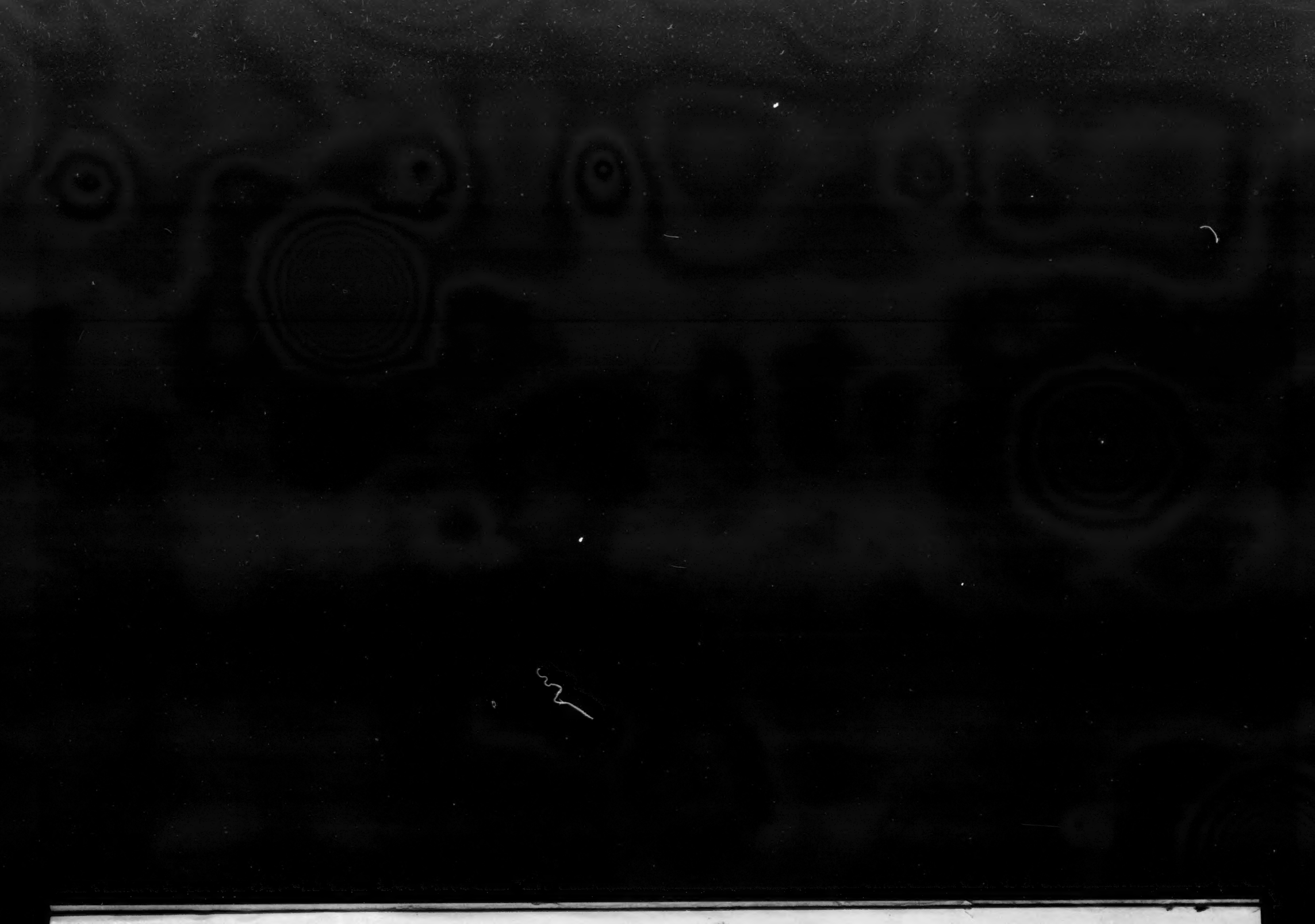
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